Mathematics - Grade 5
2024 - 2025

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

Number
Read, write, and model numbers using the base-10 system up to millions and beyond, emphasizing place value.
Read, write, compare, and order whole numbers up to millions or beyond, including applying these skills to real-life situations.
Round decimals to a specified place value or the nearest whole number.
Automatically recall and use basic number facts.
Use mental and written strategies for addition and subtraction of whole numbers up to millions.
Use mental and written strategies for multiplying whole numbers with up to a 2-digit multiplier and dividing whole numbers with up to a 2-digit divisor.
Solve real-life word problems using all operations with numbers up to 1,000,000, involving two or three steps.
Recall fractions as parts of a whole and identify equivalent fractions.
Compare and order fractions with both the same and different denominators.
Simplify fractions mentally and in written form.
Model the addition and subtraction of fractions with like (same) and unlike (related) denominators.
Model the multiplication and division of fractions.
Read, write, and model decimals' addition, subtraction, multiplication, and division.
Use mental and written strategies to add, subtract, multiply, and divide fractions and decimals in real-life situations.
Fully understand that "percent" means "out of a hundred" and model this concept.
Solve real-world problems involving percentages.
Convert between fractions, decimals, and percentages.
Use fractions, decimals, and percentages interchangeably in real-life situations, including estimation.
Select and use an appropriate sequence of operations to solve word problems (i.e., order of operations).
Select and defend the most appropriate and efficient problem-solving method: mental estimation, mental computation, or written algorithms using a calculator.
Use strategies to evaluate the reasonableness of answers.
Perform a full range of calculations with money, including calculating percentages and fractions of amounts.

Solve real-life money problems (e.g., budgeting, basic financial literacy, and taxes) involving all operations with decimals.
Read, write, and model ratios, including their use in real-life applications.
Read, write, model, and order integers (positive and negative numbers) in appropriate contexts, including their use in real-life situations (e.g., weather temperature)
Read, write, and model exponents and square roots (e.g., square and cube numbers).
Recognize prime and composite numbers, including using prime factorization.
Patterns and Functions
Understand that patterns can be represented, analysed and generalized using tables, graphs, words, and, when possible, symbolic rules.
Select appropriate methods to analyze patterns and identify rules.
Represent the rule of a pattern by using a function and explain it.
Understand exponents (up to the power of 3) as repeated multiplication.
Understand the inverse relationship between exponents and simple roots (e.g., four is the square root of 16).
Investigate patterns, including square numbers, triangular numbers, arithmetic progressions, geometric progressions, and other sequences.
Create and solve real-life problems using number patterns and functions.
Measurement
Select and use appropriate standard units of measurement when estimating, describing, comparing, and measuring.
Use measuring tools with simple scales accurately.
Estimate, measure, label, and compare the dimensions of area, perimeter, volume, and capacity using formal methods and standard units of measurement.
Understand that the accuracy of a measurement depends on the context and the precision of the measuring tools used.
Apply area and perimeter concepts to solve word problems involving multiple steps.
Use and construct timetables (12-hour and 24-hour) and timelines.
Read and write the time on analog and digital clocks using 12-hour and 24-hour formats, including AM and PM.
Determine and work with times across different time zones worldwide.
Calculate elapsed time, including using fractions.
Apply the concept of volume to solve various word problems involving multiple steps.
Measurement of Weight: kg (kilograms), g (grams), mg (milligrams), and t (tons).
Convert between units of mass, including: Milligrams to grams: 1,000 mg = 1 g Grams to kilograms: 1,000 g = 1 kg Kilograms to tons: 1,000 kg = 1 t
Use decimal notation in measurements, such as 3.2 cm, 1.47 kg, and 1.63 euros.
Perform addition and subtraction with decimal amounts.
Develop an understanding of the relationships between area, perimeter, surface area, and volume/ capacity.
Explore the concept of positive and negative temperature.
Solve multi-step real-life word problems involving various types of measurements.

Shape and Space
Use geometric vocabulary for 2-D shapes: polygon, congruent, scalene triangle, isosceles triangle, equilateral triangle, and right-angled triangle.
Use geometric vocabulary for 3-D shapes: polyhedron.
Write the number of faces, edges, and vertices of 3-D shapes.
Review the use of vocabulary for types of angles: obtuse, acute, straight, reflex, and revolution.
Understand that an angle is a measure of rotation.
Use a protractor to measure and construct angles in degrees and apply this in various situations.
Draw symmetrical patterns by translation and rotation, including tessellation.
Identify and draw lines of symmetry and find the order of rotational symmetry.
Understand and use the vocabulary for lines, rays, and segments: parallel and perpendicular.
Understand and use geometric vocabulary for circles: diameter, radius, and circumference.
Understand and use the Cartesian coordinate system to describe and plot a point on the plane.
Describe objects' transformations and design a pattern through reflection, translation, and rotation.
Draw the enlargement or reduction of an object using the scale factor.
Solve real-life word problems involving multiple concepts of shapes and space, particularly on geometric shapes, coordinate grids, and transformations.
Data Handling
Understand that different types of graphs have particular purposes and decide their suitability for displaying information.
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, record, and organize the data in displays: pictograph, bar graph, circle graph (pie chart), line graph, etc.
Find, identify, describe, and explain a data set's range, mode, median, and mean.
Understand that the mode, median, mean, and range can summarize a data set.
Set up a spreadsheet using simple formulas to manipulate data and create graphs.
Create and manipulate an electronic database for their purposes.
Identify the probability of an event happening in a more challenging situation.
Understand that probability can be expressed on a scale (0-1) or as a percentage (0%-100%), which can be extended to decimals and fractions.
Understand the difference between experimental and theoretical probability.
Determine the theoretical probability of an event and explain why it might differ from experimental probability.
Solve real-life word problems with data handling and probability involving multiple steps.