

**Massachusetts Curriculum Framework
Correlated to
Academic Language Notebooks
The Language of Math
Grade 4**

Massachusetts Framework	Module Number and Name
Number Sense and Operations Strand	
<i>Students engage in problem solving, communicating, reasoning, connecting, and representing as they:</i>	
4.N.1 Exhibit an understanding of the base ten number system by reading, modeling, writing, and interpreting whole numbers to at least 100,000; demonstrating an understanding of the values of the digits; and comparing and ordering the numbers.	1. Place Value
4.N.2 Represent, order, and compare large numbers (to at least 100,000) using various forms, including expanded notation, e.g., $853 = 8 \times 100 + 5 \times 10 + 3$.	2. Compare and Order Whole Numbers
4.N.3 Demonstrate an understanding of fractions as parts of unit wholes, as parts of a collection, and as locations on the number line.	26. Read and Write Fractions
4.N.4 Select, use, and explain models to relate common fractions and mixed numbers ($\frac{1}{2}$, $\frac{1}{3}$, $\frac{1}{4}$, $\frac{1}{5}$, $\frac{1}{6}$, $\frac{1}{8}$, $\frac{1}{10}$, $\frac{1}{12}$, and $1\frac{1}{2}$), find equivalent fractions, mixed numbers, and decimals, and order fractions.	27. Compare and Order Equivalent Fractions
4.N.5 Identify and generate equivalent forms of common decimals and fractions less than one whole (halves, quarters, fifths, and tenths).	30. Decimal Concepts
4.N.6 Exhibit an understanding of the base ten number system by reading, naming, and writing decimals between 0 and 1 up to the hundredths.	30. Decimal Concepts
4.N.7 Recognize classes (in particular, odds, evens; factors or multiples of a given number; and squares) to which a number may belong, and identify the numbers in those classes. Use these in the solution of problems.	
4.N.8 Select, use, and explain various meanings and models of multiplication and division of whole numbers. Understand and use the inverse relationship between the two operations.	7. Multiplication and Division Concepts
4.N.9 Select, use, and explain the commutative, associative, and identity properties of operations on whole numbers in problem situations, e.g., $37 \times 46 = 46 \times 37$, $(5 \times 7) \times 2 = 5 \times (7 \times 2)$.	8. Multiplication Properties and Division Rules
4.N.10 Select and use appropriate operations (addition, subtraction, multiplication, and division) to solve problems, including those involving money.	4. Money
4.N.11 Know multiplication facts through 12×12 and related division facts. Use these facts to solve related multiplication problems and compute related problems, e.g., 3×5 is related to 30×50 , 300×5 , and 30×500 .	10. Model Multiplication by 1- and 2- digit numbers 12. Mental Math and Estimation with Multiplication and Division
4.N.12 Add and subtract (up to five-digit numbers) and multiply (up to three digits by two digits) accurately and efficiently.	9. Multiplication and Division Facts 11. Model Division by 1- and 2-digit numbers
4.N.13 Divide up to a three-digit whole number with a single-digit divisor (with or without remainders) accurately and efficiently. Interpret any remainders.	
4.N.14 Demonstrate in the classroom an understanding of and the ability to use the conventional algorithms for addition and subtraction (up to five-digit numbers), and multiplication (up to three digits by two digits).	10. Model Multiplication by 1- and 2- digit numbers

Massachusetts Framework	Module Number and Name
Number Sense and Operations Strand Continued	
4.N.15 Demonstrate in the classroom an understanding of and the ability to use the conventional algorithm for division of up to a three-digit whole number with a single-digit divisor (with or without remainders).	11. Model Division by 1- and 2-digit numbers
4.N.16 Round whole numbers through 100,000 to the nearest 10, 100, 1000, 10,000, and 100,000.	3. Round Whole Numbers
4.N.17 Select and use a variety of strategies (e.g., front-end, rounding, and regrouping) to estimate quantities, measures, and the results of whole number computations up to three-digit whole numbers and amounts of money to \$1000, and to judge the reasonableness of the answer.	
4.N.18 Use concrete objects and visual models to add and subtract common fractions.	26. Read and Write Fractions
Patterns, Relations, and Algebra Strand	
<i>Students engage in problem solving, communicating, reasoning, connecting, and representing as they:</i>	
4.P.1 Create, describe, extend, and explain symbolic (geometric) and numeric patterns, including multiplication patterns like 3, 30, 300, 3000, . .	15. Patterns and Functions
4.P.2 Use symbol and letter variables (e.g., s, x) to represent unknowns or quantities that vary in expressions and in equations or inequalities (mathematical sentences that use =, <, >).	13. Algebraic Expressions
4.P.3 Determine values of variables in simple equations, e.g., $4106 - \blacktriangledown = 37$; $5 = \quad + 3$ and $\quad - \quad = 3$.	14. Algebraic Equations
4.P.4 Use pictures, models, tables, charts, graphs, words, number sentences, and mathematical notations to interpret mathematical relationships.	19. Collect and Organize Data
4.P.5 Solve problems involving proportional relationships, including unit pricing (e.g., four apples cost 80¢, so one apple costs 20¢) and map interpretation (e.g., one inch represents five miles, so two inches represent ten miles).	6. Estimation
4.P.6 Determine how change in one variable relates to a change in a second variable, e.g., input-output tables.	15. Patterns and Functions

Massachusetts Framework	Module Number and Name
Geometry Strand	
<i>Students engage in problem solving, communicating, reasoning, connecting, and representing as they:</i>	
4.G.1 Compare and analyze attributes and other features (e.g., number of sides, faces, corners, right angles, diagonals, and symmetry) of two- and three-dimensional geometric shapes.	21. Points, Lines, Line Segments, Rays, and Angles
4.G.2 Describe, model, draw, compare, and classify two- and three-dimensional shapes, e.g., circles, polygons—especially triangles and quadrilaterals—cubes, spheres, and pyramids.	22. Triangles, Other Polygons, and Circles
4.G.3 Recognize similar figures.	21. Points, Lines, Line Segments, Rays, and Angles 23. Transformations and Symmetry
4.G.4 Identify angles as acute, right, or obtuse.	
4.G.5 Describe and draw intersecting, parallel, and perpendicular lines.	
4.G.6 Using ordered pairs of numbers and/or letters, graph, locate, identify points, and describe paths (first quadrant).	20. Read and Make Graphs
4.G.7 Describe and apply techniques such as reflections (flips), rotations (turns), and translations (slides) for determining if two shapes are congruent.	23. Transformations and Symmetry
4.G.8 Identify and describe line symmetry in two-dimensional shapes.	23. Transformations and Symmetry
4.G.9 Predict and validate the results of partitioning, folding, and combining two- and three-dimensional shapes.	
Measurement Strand	
<i>Students engage in problem solving, communicating, reasoning, connecting, and representing as they:</i>	
4.M.1 Demonstrate an understanding of such attributes as length, area, weight, and volume, and select the appropriate type of unit for measuring each attribute.	17. Measures of Length (Customary and Metric) 18. Measures of Capacity and Weight/Mass (Customary and Metric)
4.M.2 Carry out simple unit conversions within a system of measurement, e.g., hours to minutes, cents to dollars, yards to feet or inches, etc.	
4.M.3 Identify time to the minute on analog and digital clocks using a.m. and p.m. Compute elapsed time using a clock (e.g., hours and minutes since . . .) and using a calendar (e.g., days since . . .).	16. Time
4.M.4 Estimate and find area and perimeter of a rectangle, triangle, or irregular shape using diagrams, models, and grids or by measuring.	24. Perimeter and Area
4.M.5 Identify and use appropriate metric and English units and tools (e.g., ruler, angle ruler, graduated cylinder, thermometer) to estimate, measure, and solve problems involving length, area, volume, weight, time, angle size, and temperature.	

Massachusetts Framework	Module Number and Name
Data Analysis, Statistics, and Probability Strand	
<i>Students engage in problem solving, communicating, reasoning, connecting, and representing as they:</i>	
4.D.1 Collect and organize data using observations, measurements, surveys, or experiments, and identify appropriate ways to display the data.	19. Collect and Organize Data
4.D.2 Match representations of a data set such as lists, tables, or graphs (including circle graphs) with the actual set of data.	20. Read and Make Graphs
4.D.3 Construct, draw conclusions, and make predictions from various representations of data sets, including tables, bar graphs, pictographs, line graphs, line plots, and tallies.	20. Read and Make Graphs
4.D.4 Represent the possible outcomes for a simple probability situation, e.g., the probability of drawing a red marble from a bag containing three red marbles and four green marbles.	
4.D.5 List and count the number of possible combinations of objects from three sets, e.g., how many different outfits can one make from a set of three shirts, a set of two skirts, and a set of two hats?	
4.D.6 Classify outcomes as certain, likely, unlikely, or impossible by designing and conducting experiments using concrete objects such as counters, number cubes, spinners, or coins.	