

**Scott Foresman
Investigations in Number, Data, and Space
Content Scope & Sequence**

**Correlated to
Academic Language Notebooks
The Language of Math
Grade 5**

Content Scope & Sequence	Module Number and Name
Unit 1: Number Puzzles and Multiple Towers (Multiplication and Division 1)	
Mathematical Emphases	
1. Whole-Number Operations Reasoning about numbers and their factors	
<ul style="list-style-type: none"> • Determining whether one number is a factor or multiple of another • Identifying prime, square, even, and odd numbers • Using known multiplication combinations to find equivalent multiplication combinations (e.g., $18 = 3 \times 6 = 3 \times (2 \times 3)$) • Using known multiplication combinations to find multiplication combinations for numbers related by place value (e.g., $3 \times 6 = 18$; $3 \times 6 \times 10 = 180$) • Finding all the ways to multiply whole numbers for a given product • Finding all the factors of a number • Using properties (even, odd, prime, square) and relationships (factor, multiple) of numbers to solve problems • Determining the prime factorization of a number 	9. Factors and Divisibility 10. Common Factors and Common Multiples
2. Computational Fluency Solving multiplication problems with 2-digit number	
<ul style="list-style-type: none"> • Solving 2-digit by 2-digit multiplication problems • Describing and comparing strategies used to solve multiplication problems • Breaking up multiplication problems efficiently • Multiplying fluently by multiples of 10 • Estimating the product of two numbers • Comparing multiplication problems to determine which product is greater 	
3. Whole-Number Operations Understanding and using the relationship between multiplication and division to solve division problems	
<ul style="list-style-type: none"> • Solving division problems with 2-digit divisors • Using knowledge of multiples of 10 to solve division problems • Using and interpreting notation that represents division and relating division and multiplication notations (e.g., $170 \div 15 =$ and $\times 15 = 170$) • Describing and comparing strategies used to solve division problems • Comparing division problems to determine which quotient is greater • Solving a division problem by breaking the dividend into parts 	6. Patterns and Estimation in Multiplication 8. Patterns and Estimation in Division
4. Whole-Number Operations Representing the meaning of multiplication and division	
<ul style="list-style-type: none"> • Writing multiplication equations that describe dot arrangements • Using arrays to model multiplication • Representing a multiplication or division problem with a picture or diagram • Creating a story problem represented by a multiplication or division expression • Making sense of remainders in terms of problem context 	6. Patterns and Estimation in Multiplication 8. Patterns and Estimation in Division

Unit 2: Prisms and Pyramids (3-D Geometry and Measurement)	
Mathematical Emphases	
1. Features of Shape Translating between 2-dimensional and 3-dimensional shapes	
<ul style="list-style-type: none"> Decomposing 3-D shapes and then recombining them to make a given building 	20. Solid Figures
2. Volume Structuring rectangular prisms and determining their volume	
<ul style="list-style-type: none"> Determining the number of cubes that will fit into the box made by a given pattern Developing a strategy for determining the volume of rectangular prisms Designing patterns for boxes that hold a given number of cubes Finding the volume of rectangular prisms Considering how the dimensions of a box change when the volume is changed (doubled, halved, or tripled) Organizing rectangular packages to fit in rectangular boxes Designing a box that can be completely filled with several differently-shaped rectangular packages Determining the volume, in cubic centimeters, of a small prism Constructing units of volume—cubic centimeter, cubic inch, cubic foot, cubic yard (optional), cubic meter Choosing an appropriate unit of volume to measure a large space Finding the volume of a large space, such as the classroom, using cubic meters 	23. Area, Surface Area, and Volume
3. Volume Structuring prisms, pyramids, cylinders, and cones and determining their volume	
<ul style="list-style-type: none"> Comparing volumes of different-shaped containers Finding volume relationships between solids, particularly those with the same base and height Building a prism with three times the volume of a given pyramid Demonstrating the 3:1 relationship between rectangular prisms and pyramids with the same base and height Finding volume, in cubic centimeters, of prisms, pyramids, cylinders, and cones 	23. Area, Surface Area, and Volume

Unit 3: Thousands of Miles, Thousands of Seats (Addition, Subtraction, and the Number System)	
Mathematical Emphases	
1. The Base-Ten Number System Extending knowledge of the number system to 100,000 and beyond	
<ul style="list-style-type: none"> • Reading, writing, and sequencing numbers to 10,000 and 100,000 • Understanding the place-value relationships between 10, 100, 1,000, and 10,000 • Learning the names of places larger than 100,000: million, billion, trillion 	1. Place Value of Whole Numbers and Decimals
2. Computational Fluency Adding and subtracting accurately and efficiently	
<ul style="list-style-type: none"> • Adding and subtracting multiples of 100 and 1,000 • Finding the difference between a number and 10,000 • Finding combinations of 3-digit numbers that add to 1,000 • Solving addition and subtraction problems with large numbers by focusing on the place value of the digits • Solving whole-number addition and subtraction problems efficiently • Using clear and concise notation for recording addition and subtraction strategies • Interpreting and solving multi step problems 	4. Properties of Addition
3. Whole-Number Operations Examining and using strategies for subtracting whole numbers	
<ul style="list-style-type: none"> • Identifying, describing, and comparing subtraction strategies by focusing on how each strategy starts • Analyzing and using different subtraction strategies • Developing arguments about how the differences represented by two subtraction expressions are related (e.g., $1,208 - 297$ and $1,208 - 300$) • Understanding the meaning of the steps and notation of the U.S. algorithm for subtraction 	2. Compare and Order Whole Numbers and Decimals

Unit 4: What's That Portion? (Fractions and Percents 1)	
Mathematical Emphases	
1. Rational Numbers Understanding the meaning of fractions and percents	
<ul style="list-style-type: none"> • Interpreting everyday uses of fractions, decimals, and percents • Finding fractional parts of a whole or of a group (of objects, people, and so on) • Finding a percentage of a group (of objects, people, and so on) • Finding a percentage of a rectangular area • Identifying fraction and percent equivalents through reasoning about representations and known equivalents and relationships • Finding fractional parts of a rectangular area • Interpreting the meaning of the numerator and denominator of a fraction • Using equivalent fractions and percents to solve problems • Representing fractions on a number line 	12. Equivalent Fractions and Simplest Form
2. Rational Numbers Comparing fractions	
<ul style="list-style-type: none"> • Ordering fractions and justifying their order through reasoning about fraction equivalents and relationships • Comparing fractions and percents to the landmarks 0, $\frac{1}{2}$, and 1 • Finding and comparing fractional parts and percents of a whole or a group • Comparing fractional parts of different-sized wholes • Using equivalencies to place fractions on a set of number lines (fraction tracks) • Comparing fractions on a number line • Ordering mixed numbers and fractions greater than 1 	11. Fraction and Mixed Number Concepts 13. Compare and Order Fractions
3. Computation with Rational Numbers Adding and subtracting fractions	
<ul style="list-style-type: none"> • Finding fractional parts of the rotation around a circle • Adding fractions by using a rotation model • Adding and subtracting fractions through reasoning about fraction equivalents and relationships • Adding and subtracting fractions by using a number line • Finding combinations of fractions with sums between 0 and 2 	14. Add and Subtract Fractions with Unlike Denominators

Unit 5: Measuring Polygons (2-D Geometry and Measurement)	
Mathematical Emphases	
1. Features of Shape Describing and classifying 2-dimensional figures	
<ul style="list-style-type: none"> Identifying attributes of polygons Describing triangles by the sizes of their angles and the lengths of their sides Using attributes to describe and compare quadrilaterals, including parallelograms, rectangles, rhombuses, and squares Defining a regular polygon as a polygon with all sides and all angles equal 	17. Triangles, Polygons, and Quadrilaterals
2. Features of Shape Describing and measuring angles	
<ul style="list-style-type: none"> Using known angles to find the measures of other angles 	17. Triangles, Polygons, and Quadrilaterals
3. Linear and Area Measurement Finding perimeter and area of rectangles	
<ul style="list-style-type: none"> Comparing the perimeters and areas of rectangles when the dimensions are multiplied by given amounts Using numerical and/or geometric patterns to describe how the perimeters and areas of rectangles change when the dimensions change Using representations to explain how perimeters and areas of rectangles change Creating different rectangles with the same area but different perimeters Understanding square units as a unit of measure Creating different rectangles with the same perimeter but different areas Describing the shapes of rectangles that have the same area or the same perimeter 	22. Perimeter and Circumference 23. Area, Surface Area, and Volume
4. Features of Shape Creating and describing similar shapes	
<ul style="list-style-type: none"> Recognizing and building similar figures Examining the relationship among angles, line lengths, and areas of similar polygons Making a generalization about the changes in area of similar figures Building similar figures for polygons made from two or more Power Polygon pieces Using Power Polygons™ to find the areas of similar hexagons 	

Unit 6: Decimals on Grids and Number Lines (Decimals, Fractions, and Percents 2)	
Mathematical Emphases	
1. Rational Numbers Understanding the meaning of decimal fractions	
<ul style="list-style-type: none"> Identifying everyday uses of fractions and decimals Representing decimal fractions as parts of an area Reading and writing tenths, hundredths, and thousandths Identifying decimal, fraction, and percent equivalents Representing decimals by using a number line Interpreting fractions as division Interpreting the meaning of digits in a decimal number 	27. Percent
2. Rational Numbers Comparing decimal fractions	
<ul style="list-style-type: none"> Ordering decimals and justifying their order through reasoning about decimal representations, equivalents, and relationships Comparing decimals to the landmarks 0, $\frac{1}{2}$, and 1 	
3. Computation with Rational Numbers Adding decimals	
<ul style="list-style-type: none"> Estimating sums of decimal numbers Using representations to add tenths, hundredths, and thousandths Adding decimals to the thousandths through reasoning about place value, equivalents, and representations 	
Unit 7: How Many People? How Many Teams? (Multiplication and Division 2)	
1. Whole-Number Operations Reasoning about equivalent expressions in multiplication and division	
<ul style="list-style-type: none"> Generating equivalent multiplication expressions by doubling (or tripling) one factor and dividing the other by 2 (or 3) Using story contexts and representations to support explanations of the relationship between equivalent expressions Developing arguments about how to generate equivalent expressions in multiplication Comparing equivalent multiplication expressions to equivalent division expressions Generating equivalent division expressions 	7. Properties of Multiplication
2. Whole-Number Operations Representing the meaning of multiplication and division	
<ul style="list-style-type: none"> Representing equivalent expressions in multiplication Representing equivalent expressions in division Representing a division problem with a picture or diagram Creating a story context for a division expression 	
3. Computational Fluency Solving multiplication problems with 2-digit and 3-digit numbers	
<ul style="list-style-type: none"> Solving 2-digit by 2-digit or 3-digit multiplication problems fluently Describing and comparing strategies used to solve multi digit multiplication problems Estimating answers to multiplication and division problems Understanding the U.S. algorithm for multiplication 	
4. Computational Fluency Solving division problems with 2-digit divisors	
<ul style="list-style-type: none"> Describing and comparing strategies used to solve division problems Solving division problems with a 2-digit divisor fluently 	

Unit 8: Growth Patterns (Patterns, Functions, and Change)	
Mathematical Emphases	
1. Using Tables and Graphs Using tables to represent change	
<ul style="list-style-type: none"> Using tables to represent the relationship between two quantities 	24. Make and Read Graphs
2. Using Tables and Graphs Using graphs to represent change	
<ul style="list-style-type: none"> Plotting points on a coordinate grid to represent a situation in which one quantity is changing in relation to another Identifying points in a graph with corresponding values in a table and interpreting the numerical information in terms of the situation the graph represents Describing the relative steepness of graphs or parts of graphs in terms of different rates of change Comparing situations by describing differences in their graphs 	24. Make and Read Graphs
3. Linear Change Describing and representing situations with a constant rate of change	
<ul style="list-style-type: none"> Describing the relationship between two quantities in a situation with a constant rate of change, taking into account a beginning amount and a constant increase (or decrease) Finding the value of one quantity in a situation with a constant rate of change, given the value of the other (e.g., If you know the age, what is the height? or If you know the number of rows, what is the perimeter?) Writing an arithmetic expression for finding the value of one quantity in terms of the other in a situation with a constant rate of change Making rules that relate one variable to the other in situations with a constant rate of change Using symbolic letter notation to represent the value of one variable in terms of another variable 	29. Write and Solve Equations
4. Nonlinear Change Describing and representing situations in which the rate of change is not constant	
<ul style="list-style-type: none"> Comparing tables, graphs, and situations with a constant rate of change with those in which the rate of change is not constant Describing a situation in which the rate of change is not constant but can be determined Describing how a graph represents a situation in which the rate of change is not constant 	

Unit 9: How Long Can You Stand on One Foot? (Data Analysis and Probability)	
1. Data Analysis Representing data	
<ul style="list-style-type: none"> Using a line plot to represent ordered, numerical data Representing two sets of data in order to compare them Considering how well a data representation communicates to an audience 	
2. Data Analysis Describing, summarizing, and comparing data	
<ul style="list-style-type: none"> Comparing sets of data using the shape and spread of the data Describing the shape of a set of data: where the data are concentrated, the median, what is typical, highest and lowest values, range, and outliers Using medians to compare groups 	25. Statistics and Data Analysis
3. Data Analysis Analyzing and interpreting data	
<ul style="list-style-type: none"> Developing arguments based on data Drawing conclusions based on data Considering how well conclusions are supported by data 	25. Statistics and Data Analysis
4. Data Analysis Designing and carrying out a data investigation	
<ul style="list-style-type: none"> Designing an experiment to answer a question about two groups, objects, or conditions Developing and carrying out consistent procedures for collecting data from an experiment Recording and keeping track of a set of data Carrying out multiple trials in an experiment 	
5. Probability Describing the probability of an event	
<ul style="list-style-type: none"> Comparing the expected probability of an event with the actual results of repeated trials of that event Using numbers from 0 to 1 as measures of probability Determining the fairness of a game based on the probability of winning for each player 	28. Probability