

# Knowre Math: Grade 4 Curriculum

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## Chapter 1 Whole Numbers

Lesson	Topic	VA MSL
1-1 Place Value	A) Place Values to Millions	4.1.a
	B) Expanded and Standard Form of Numbers	
1-2 Reading Numbers	A) Reading Numbers to Millions	4.1.a
1-3 Writing Numbers	A) Writing Numbers to Millions	4.1.a
1-4 Comparing Numbers	A) Comparing Numbers with Six or Fewer Digits	4.1.b
1-5 Ordering Numbers	A) Ordering Whole Numbers	4.1.b
1-6 Rounding	A) Rounding to a Given Place Value	4.1.c
	B) Rounding to a Lead Digit	

## Chapter 2 Adding and Subtracting Whole Numbers

Lesson	Topic	VA MSL
2-1 Vertical Addition	A) Vertical Addition of Two Numbers with Six or Fewer Digits	4.4.b, 4.4.d
	B) Vertical Addition of Three or More Numbers	
2-2 Horizontal Addition	A) Horizontal Addition of Two Numbers	4.4.b, 4.4.d
	B) Horizontal Addition of Three or More Numbers	
2-3 Vertical Subtraction	A) Vertical Subtraction of Numbers with Six or Fewer Digits	4.4.b, 4.4.d
2-4 Horizontal Subtraction	A) Horizontal Subtraction of Two Numbers	4.4.b, 4.4.d
	B) Horizontal Addition or Subtraction of Three or More Numbers	
2-5 Addition and Subtraction Relations	A) Relationships Between Addition and Subtraction Sentences	4.4.b
	B) Missing Numbers in Addition and Subtraction Sentences	
2-6 Estimating Sums and Differences	A) Estimating Sums and Differences	4.4.b

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## Chapter 3 Multiplying Whole Numbers

<b>Lesson</b>	<b>Topic</b>	<b>VA MSL</b>
3-1 Basic Multiplication Facts	A) Single Digit Multiplication	4.4.a, 4.4.d
3-2 Products with Multiples of 10	A) Multiplying a One-Digit Number and Ten	4.4.a, 4.4.d
	B) Pattern of Zeros – Multiplication	
3-3 Multiply by One-Digit Numbers - Models	A) Base Ten Blocks to Multiply by One-Digit Numbers	4.4.a, 4.4.b, 4.4.d
	B) Tables to Multiply by One-Digit Numbers	
	C) Partial Products to Multiply by One-Digit Numbers	
3-4 Multiplying by One-Digit Numbers - Standard Algorithm with No Regrouping	A) Standard Algorithm to Multiply by One-Digit Numbers without Regrouping	4.4.a, 4.4.d
3-5 Multiplying by One-Digit Numbers - Standard Algorithm with Regrouping	A) Standard Algorithm to Multiply by One-Digit Numbers with Regrouping	4.4.a, 4.4.d
3-6 Multiplying Two-Digit Numbers - Models	A) Tables to Multiply Two-Digit Numbers	4.4.a, 4.4.b, 4.4.d
	B) Partial Products to Multiply Two-Digit Numbers	
3-7 Multiplying Two-Digit Numbers - Standard Algorithm	A) Standard Algorithm to Multiply Two-Digit Numbers without Regrouping	4.4.a, 4.4.b, 4.4.d
	B) Standard Algorithm to Multiply Two-Digit Numbers with Regrouping	
3-8 Horizontal Multiplication - No Regrouping	A) Horizontal Multiplication of One-Digit Numbers without Regrouping	4.4.a, 4.4.b, 4.4.d
	B) Horizontal Multiplication of Two-Digit Numbers without Regrouping	
3-9 Horizontal Multiplication - Regrouping	A) Horizontal Multiplication of One-Digit Numbers with Regrouping	4.4.a, 4.4.b, 4.4.d
	B) Horizontal Multiplication of Two-Digit Numbers with Regrouping	
3-10 Estimating Products	A) Estimating Products	4.4.b

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## Chapter 4 Dividing Whole Numbers

Lesson	Topic	VA MSL
4-1 Basic Division Facts	A) One-Digit Quotients When Dividing by One-Digit Numbers	4.4.a, 4.4.d
4-2 Quotients with Multiples of Ten	A) One Digit Quotients When Dividing by Ten	4.4.a, 4.4.d
	B) Pattern of Zeros - Division	
4-3 Dividing by One-Digit Numbers with No Remainders - Models	A) Base Ten Blocks to Divide Two-Digit by One-Digit Numbers	4.2.c, 4.4.a, 4.4.c, 4.4.d
	B) Base Ten Blocks to Divide by Three-Digit by One-Digit Numbers	
4-4 Dividing by One-Digit Numbers with No Remainders - Partial Quotients	A) Partial Quotients to Divide by One-Digit Numbers	4.4.a, 4.4.c, 4.4.d
4-5 Dividing by One-Digit Numbers with No Remainders - Standard Algorithm	A) Long Division to Divide by One-Digit Numbers	4.4.a, 4.4.c, 4.4.d
4-6 Dividing by One-Digit Numbers with Remainders - Models	A) Quotient and Remainder from Base Ten Blocks	4.2.c, 4.4.c, 4.4.d
	B) Base Ten Blocks to Divide Two-Digit by One-Digit Numbers with Remainders	
	C) Base Ten Blocks to Divide Three-Digit by One-Digit Numbers with Remainders	
4-7 Dividing by One-Digit Numbers with Remainders - Partial Quotients	A) Quotient and Remainder from Partial Quotients	4.4.c, 4.4.d
	B) Partial Quotients to Divide by One-Digit Numbers with Remainders	
4-8 Dividing by One-Digit Numbers with Remainders - Standard Algorithm	A) Long Division to Divide by One-Digit Numbers with Remainders	4.4.c, 4.4.d
4-9 Horizontal Division - No Remainders	A) Horizontal Division by One-Digit Numbers	4.4.c, 4.4.d
	B) Estimating Quotients	
4-10 Horizontal Division - Remainders	A) Horizontal Division by One-Digit Numbers with Remainders	4.4.c, 4.4.d
4-11 Estimating Quotients	A) Estimating Quotients	4.4.b, 4.4.c

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## Chapter 5 Operations and Patterns

Lesson	Topic	VA MSL
5-1 Multiplication and Division Relations	A) Relationships Between Multiplication and Division Sentences	4.4.a, 4.4.d
	B) Missing Numbers in Multiplication and Division Sentences	
5-2 Mixed Operations	A) Horizontal Multiplication and Division of Three or More Numbers	4.4.d
	B) Order of Operations to Evaluate Expressions without Grouping Symbols	
5-3 Expressions and Equations	A) Addition and Subtraction Expressions	4.4.d
	B) Multiplication and Division Expressions	
	C) Expressions with More Than One Operation	
	D) Number Sentences	
5-4 Introduction to Patterns	A) Repeating Patterns	4.15
5-5 Rules and Patterns	A) Patterns and Rules	4.15
	B) Continuing and Completing Patterns	

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## Chapter 6 Fraction Concepts

Lesson	Topic	VA MSL
6-1 Divisibility and Multiples	A) Divisibility by 2, 3, 5, and 10	4.5.a
	B) Multiples	
6-2 Factors	A) Factors	4.5.a
	B) Prime and Composite Numbers	
6-3 Introduction to Fractions	A) Word Form of Fractions	3.2.a, 3.2.b
	B) Writing Fractions from Models	
	C) Modeling Fractions with Fraction Bars	
6-4 Fractions on Number Lines	A) Writing Fractions from Number Lines	
	B) Modeling Fractions on Number Lines	
6-5 Equivalent Fraction Models	A) Models to Write Equivalent Fractions	4.2.b
	B) Models to Simplify Fractions	
	C) Models to Identify Equivalent Fractions	
6-6 Equivalent Fractions	A) Writing Equivalent Fractions	4.2.b, 4.5.a
	B) Simplifying Fractions	
6-7 Comparing Fractions	A) Comparing Fractions with the Same Denominator	4.2.a
	B) Comparing Fractions with the Same Numerator	
	C) Comparing Fractions with Different Numerators and Denominators	
6-8 Ordering Fractions	A) Ordering Fractions with the Same Denominator or Numerator	4.2.a
	B) Ordering Fractions with Different Numerators or Denominators	

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## Chapter 7 Fraction Addition, Subtraction, and Multiplication

<b>Lesson</b>	<b>Topic</b>	<b>VA MSL</b>
7-1 Fraction Decomposition with Models	A) Fractions Bars to Decompose Fractions	4.5.b, 4.5.c
	B) Number Lines to Decompose Fractions	
7-2 Fraction Decomposition with Same Denominators	A) Decomposition of Fractions	4.5.b, 4.5.c
7-3 Add Fractions - No Regrouping	A) Models to Add Fractions with Like Denominators - No Regrouping	4.5.b, 4.5.c
	B) Adding Fractions with Like Denominators - No Regrouping	
	C) Vertical Addition with Mixed Numbers - No Regrouping	
7-4 Using Models to Add Fractions - Regrouping	A) Models to Write Improper Fractions as Mixed Numbers	4.5.b, 4.5.c
	B) Models to Add Fractions with Like Denominators - Regrouping	
7-5 Adding Fractions - Regrouping	A) Decomposition to Write Improper Fractions as Mixed Numbers	4.5.b, 4.5.c
	B) Adding Fractions with Like Denominators - Regrouping	
	C) Vertical Addition with Mixed Numbers - Regrouping	
7-6 Adding Mixed Numbers Horizontally	A) Horizontal Addition with Mixed Numbers - No Regrouping	4.5.b, 4.5.c
	B) Horizontal Addition with Mixed Numbers - Regrouping	
7-7 Subtracting Fractions - No Regrouping	A) Models to Subtract Fractions with Like Denominators	4.5.b, 4.5.c
	B) Subtracting Fractions with Like Denominators	
	C) Vertical Subtraction with Mixed Numbers - No Regrouping	
7-8 Subtracting Mixed Numbers Vertically	A) Regrouping to Rewrite Whole and Mixed Numbers	4.5.b, 4.5.c
	B) Vertical Subtraction with Mixed Numbers - Regrouping	

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## Chapter 7 Fraction Addition and Subtraction (cont.)

Lesson	Topic	VA MSL
7-9 Subtracting Mixed Numbers Horizontally	A) Horizontal Subtraction with Mixed Numbers - No Regrouping	4.5.b, 4.5.c
	B) Horizontal Subtraction with Mixed Numbers - Regrouping	
7-10 Add and Subtract Fractions - Denominators 10 and 100	A) Models of Equivalent Fractions with Denominators of 10 and 100	4.5.b, 4.5.c
	B) Models to Add Fractions with Different Denominators	
	C) Models to Subtract Fractions with Different Denominators	
7-11 Multiplying Whole Numbers and Unit Fractions	A) Multiplication as Repeated Addition	5.6.b
	B) Fractions as Whole Numbers Times Unit Fractions	
	C) Multiplying Whole Numbers and Unit Fractions	
7-12 Multiplying Whole Numbers and Fractions	A) Multiplying Whole Numbers and Fractions	5.6.b
	B) Changing Multiplying by a Fraction to Multiplying by a Unit Fraction	

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## Chapter 8 Decimals

Lesson	Topic	VA MSL
8-1 Decimal Models - Tenths	A) Models of Decimals Less Than One - Tenths	4.3.a, 4.3.d
	B) Models of Decimals Greater Than One - Tenths	
	C) Models of Decimals and Fractions - Tenths	
8-2 Decimal Models - Hundredths	A) Models of Decimals Less Than One - Hundredths	4.3.a, 4.3.d
	B) Models of Decimals Greater Than One - Hundredths	
	C) Models of Decimals and Fractions - Hundredths	
8-3 Decimals on a Number Line - Tenths	A) Number Lines and Decimals - Tenths	4.3.a, 4.3.d
8-4 Decimals on a Number Line - Hundredths	A) Number Lines and Decimals - Hundredths	4.3.a, 4.3.d
8-5 Decimal Place Value	A) Decimal Place Value	4.3.a
	B) Reading and Writing Decimals	
	C) Values of Digits in Decimals	
8-6 Comparing and Ordering Decimals	A) Models to Compare Decimals	4.3.c
	B) Comparing Decimals	
	C) Ordering Decimals	
8-7 Decimals and Fractions	A) Writing Decimals as Fractions	4.3.d
	B) Writing Fractions as Decimals	



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## Chapter 9 Measurement and Data

Lesson	Topic	VA MSL
9-1 Customary Units of Length	A) Estimating Customary Units of Length	4.8.a, 4.8.c, 4.8.d
	B) Converting Customary Units of Length	
9-2 Customary Units of Volume	A) Estimating Customary Units of Volume	4.8.c, 4.8.d
	B) Converting Customary Units of Volume	
9-3 Customary Units of Weight	A) Estimating Customary Units of Weight	4.8.b, 4.8.c, 4.8.d
	B) Converting Customary Units of Weight	
9-4 Metric Units of Length	A) Estimating Metric Units of Length	4.8.b, 4.8.c, 4.8.d
	B) Converting Metric Units of Length	
9-5 Metric Units of Volume and Mass	A) Estimating Metric Units of Volume	4.8.b, 4.8.c, 4.8.d
	B) Converting Metric Units of Volume	
	C) Estimating Metric Units of Mass	
	D) Converting Metric Units of Mass	
9-6 Units of Time	A) Converting Units of Time	4.8.c
9-7 Elapsed Time	A) a.m. or p.m.	4.8.c, 4.9
	B) Elapsed Time	
9-8 Line Plots	A) Line Plots and Data Sets	4.14.a, 4.14.b
	B) Interpreting Data in Line Plots	

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## Chapter 10 Points, Lines, and Angles

Lesson	Topic	VA MSL
10-1 Points, Lines, and Segments	A) Points and Lines	4.10.a
	B) Segments	
10-2 Parallel and Perpendicular Lines	A) Parallel and Perpendicular Lines	4.10.a, 4.10.b
10-3 Rays and Angles	A) Rays	4.10.a
	B) Angles	
10-4 Measuring Angles	A) Degrees in a Circle	4.10.a
	B) Using a Protractor	
	C) Measuring Angles Starting at Zero	
	D) Measuring Angles Not Starting at Zero	
10-5 Constructing Angles	A) Drawing Angles Opening to the Right	4.10.a
	B) Drawing Angles Opening to the Left	
10-6 Using Addition and Subtraction to Find Angle Measures	A) Angle Addition	5.12

## Chapter 11 Triangles and Quadrilaterals

Lesson	Topic	VA MSL
11-1 Classifying Triangles	A) Angle Classification	5.12, 5.13.a
	B) Angle Measures to Classify Triangles	
11-2 Classifying Quadrilaterals	A) Types of Quadrilaterals	4.12
11-3 Perimeter of Rectangles	A) Perimeter of Squares and Rectangles on a Grid	4.7
	B) Perimeters of Rectangles	
11-4 Perimeter of Squares	A) Perimeters of Squares	4.7
11-5 Area of Rectangles and Squares	A) Areas of Rectangles and Squares Given Figures	4.7
	B) Areas of Rectangles and Squares Given Descriptions	
11-6 Lines of Symmetry	A) Identifying Lines of Symmetry	2.12.a
	B) Figures with a Given Number of Lines of Symmetry	
	C) Results of Reflecting Over Lines of Symmetry	