

# Knowre Math: **Grade 4** Curriculum

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## Chapter 1 Whole Numbers

<b>Lesson</b>	<b>Topic</b>	<b>NGSSS</b>
1-1 Place Value	A) Place Values to Millions	MAFS.4.NBT.1.1, MAFS.4.NBT.1.2
	B) Expanded and Standard Form of Numbers	
1-2 Reading and Writing Numbers	A) Reading and Writing Numbers to Millions	MAFS.4.NBT.1.2
1-3 Comparing and Ordering	A) Comparing Numbers with Six or Fewer Digits	MAFS.4.NBT.1.2
	B) Ordering Whole Numbers	
1-4 Rounding	A) Rounding to a Given Place Value	MAFS.4.NBT.1.3
	B) Rounding to a Lead Digit	

## Chapter 2 Adding and Subtracting Whole Numbers

<b>Lesson</b>	<b>Topic</b>	<b>NGSSS</b>
2-1 Adding	A) Vertical Addition of Two Numbers with Six or Fewer Digits	MAFS.4.OA.1.3, MAFS.4.NBT.2.4
	B) Vertical Addition of Three or More Numbers	
2-2 Subtracting	A) Vertical Subtraction of Numbers with Six or Fewer Digits	MAFS.4.OA.1.3, MAFS.4.NBT.2.4
2-3 Horizontal Addition and Subtraction	A) Horizontal Addition of Two Numbers	MAFS.4.OA.1.3, MAFS.4.NBT.2.4
	B) Horizontal Subtraction of Two Numbers	
2-4 Addition and Subtraction Relations	A) Relationships Between Addition and Subtraction Sentences	MAFS.4.NBT.2.4
	B) Missing Numbers in Addition and Subtraction Sentences	
2-5 Mixed Operations and Estimating	A) Horizontal Addition and Subtraction of Three or More Numbers	MAFS.4.OA.1.3, MAFS.4.NBT.2.4
	B) Estimating Sums and Differences	

# Knowre Math: Grade 4 Curriculum

## Chapter 3 Multiplying Whole Numbers

Lesson	Topic	NGSSS
3-1 Basic Multiplication Facts	A) Single Digit Multiplication	MAFS.4.OA.1.1, MAFS.4.OA.1.2, MAFS.4.OA.1.3
3-2 Products with Multiples of 10	A) Multiplying a One-Digit Number and Ten	MAFS.4.OA.1.1, MAFS.4.OA.1.2, MAFS.4.OA.1.3, MAFS.4.NBT.1.1
	B) Pattern of Zeros - Multiplication	
3-3 Multiply by One-Digit Numbers - Models	A) Base Ten Blocks to Multiply by One-Digit Numbers	MAFS.4.OA.1.3, MAFS.4.NBT.2.5
	B) Tables to Multiply by One-Digit Numbers	
	C) Partial Products to Multiply by One-Digit Numbers	
3-4 Multiply by One-Digit Numbers - Standard Algorithm	A) Standard Algorithm to Multiply by One-Digit Numbers without Regrouping	MAFS.4.OA.1.3, MAFS.4.NBT.2.5
	B) Standard Algorithm to Multiply by One-Digit Numbers with Regrouping	
3-5 Multiply Two-Digit Numbers	A) Tables to Multiply Two-Digit Numbers	MAFS.4.OA.1.3, MAFS.4.NBT.2.5
	B) Partial Products to Multiply Two-Digit Numbers	
	C) Standard Algorithm to Multiply Two-Digit Numbers without Regrouping	
	D) Standard Algorithm to Multiply Two-Digit Numbers with Regrouping	
3-6 Horizontal Multiplication	A) Horizontal Multiplication of One-Digit Numbers	MAFS.4.OA.1.3, MAFS.4.NBT.2.5
	B) Horizontal Multiplication of Two-Digit Numbers	
	C) Estimating Products	

# Knowre Math: Grade 4 Curriculum

## Chapter 4 Dividing Whole Numbers

Lesson	Topic	NGSSS
4-1 Basic Division Facts	A) One-Digit Quotients When Dividing by One-Digit Numbers	MAFS.4.OA.1.3
4-2 Quotients with Multiples of Ten	A) One Digit Quotients When Dividing by Ten	MAFS.4.OA.1.3
	B) Pattern of Zeros - Division	MAFS.4.NBT.1.1
4-3 Divide with Partial Quotients - No Remainders	A) Base Ten Blocks to Divide by One-Digit Numbers	MAFS.4.OA.1.3,
	B) Partial Products to Divide by One-Digit Numbers	MAFS.4.NBT.2.6
4-4 Divide with the Standard Algorithm - No Remainders	A) Long Division to Divide by One-Digit Numbers	MAFS.4.OA.1.3, MAFS.4.NBT.2.6
4-5 Divide with Partial Quotients - Remainders	A) Base Ten Blocks to Divide by One-Digit Numbers with Remainders	MAFS.4.OA.1.3, MAFS.4.NBT.2.6
	B) Partial Products to Divide by One-Digit Numbers with Remainders	
4-6 Divide with the Standard Algorithm - Remainders	A) Long Division to Divide by One-Digit Numbers with Remainders	MAFS.4.OA.1.3, MAFS.4.NBT.2.6
4-7 Horizontal Division	A) Horizontal Division by One-Digit Numbers	MAFS.4.OA.1.3,
	B) Estimating Quotients	MAFS.4.NBT.2.6

# Knowre Math: **Grade 4** Curriculum

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## Chapter 5 Operations and Patterns

<b>Lesson</b>	<b>Topic</b>	<b>NGSSS</b>
5-1 Multiplication and Division Relations	A) Relationships Between Multiplication and Division Sentences	MAFS.3.OA.2.6
	B) Missing Numbers in Multiplication and Division Sentences	
5-2 Mixed Operations	A) Horizontal Multiplication and Division of Three or More Numbers	MAFS.4.OA.1.3
	B) Order of Operations to Evaluate Expressions without Grouping Symbols	
5-3 Expressions and Equations	A) Addition and Subtraction Expressions	MAFS.4.OA.1.3
	B) Multiplication and Division Expressions	
	C) Expressions with More Than One Operation	
	D) Number Sentences	
5-4 Patterns	A) Repeating Patterns	MAFS.4.OA.3.5
	B) Patterns and Rules	
	C) Continuing and Completing Patterns	

# Knowre Math: Grade 4 Curriculum

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## Chapter 6 Fraction Concepts

Lesson	Topic	NGSSS
6-1 Divisibility and Multiples	A) Divisibility by 2, 3, 5, and 10	MAFS.4.OA.2.4.b
	B) Multiples	
6-2 Factors	A) Factors	MAFS.4.OA.2.4.a, MAFS.4.OA.2.4.b, MAFS.4.OA.2.4.c
	B) Prime and Composite Numbers	
6-3 Fraction Introduction	A) Modeling Fractions with Fraction Bars	MAFS.3.NF.1.1, MAFS.3.NF.1.2.a, MAFS.3.NF.1.2.b
	B) Modeling Fractions on Number Lines	
6-4 Equivalent Fraction Models	A) Models to Write Equivalent Fractions	MAFS.4.NF.1.1
	B) Models to Simplify Fractions	
	C) Models to Identify Equivalent Fractions	
6-5 Equivalent Fractions	A) Writing Equivalent Fractions	MAFS.4.NF.1.1
	B) Simplifying Fractions	
6-6 Comparing and Ordering Fractions	A) Comparing Fractions with the Same Denominator	MAFS.4.NF.1.2
	B) Comparing Fractions with the Same Numerator	
	C) Comparing Fractions with Different Numerators and Denominators	
	D) Ordering Fractions	

# Knowre Math: Grade 4 Curriculum

## Chapter 7 Fraction Addition and Subtraction

Lesson	Topic	NGSSS
7-1 Fraction Decomposition	A) Models to Decompose Fractions	MAFS.4.NF.2.3.a
	B) Decomposition of Fractions	MAFS.4.NF.2.3.b
7-2 Add Fractions without Regrouping	A) Models to Add Fractions with Like Denominators - No Regrouping	MAFS.4.NF.2.3.a, MAFS.4.NF.2.3.c, MAFS.4.NF.2.3.d
	B) Adding Fractions with Like Denominators - No Regrouping	
	C) Vertical Addition with Mixed Numbers - No Regrouping	
	D) Horizontal Addition with Mixed Numbers - No Regrouping	
7-3 Add Fractions with Regrouping	A) Models to Write Improper Fractions as Mixed Numbers	MAFS.4.NF.2.3.a, MAFS.4.NF.2.3.c, MAFS.4.NF.2.3.d
	B) Models to Add Fractions with Like Denominators - Regrouping	
	C) Decomposition to Write Improper Fractions as Mixed Numbers	
	D) Adding Fractions with Like Denominators - Regrouping	
	E) Vertical Addition with Mixed Numbers - Regrouping	
	F) Horizontal Addition with Mixed Numbers - Regrouping	
7-4 Subtract Fractions without Regrouping	A) Models to Subtract Fractions with Like Denominators	MAFS.4.NF.2.3.a, MAFS.4.NF.2.3.c, MAFS.4.NF.2.3.d
	B) Subtracting Fractions with Like Denominators	
	C) Vertical Subtraction with Mixed Numbers - No Regrouping	
	D) Horizontal Subtraction with Mixed Numbers - No Regrouping	

# Knowre Math: Grade 4 Curriculum

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

Lesson	Topic	NGSSS
7-5 Subtract Fractions with Regrouping	A) Regrouping to Rewrite Whole and Mixed Numbers	MAFS.4.NF.2.3.c, MAFS.4.NF.2.3.d
	B) Vertical Subtraction with Mixed Numbers - Regrouping	
	C) Horizontal Subtraction with Mixed Numbers - Regrouping	
7-6 Add and Subtract Fractions - Denominators 10 and 100	A) Models of Equivalent Fractions with Denominators of 10 and 100	MAFS.4.NF.3.5
	B) Models to Add Fractions with Unlike Denominators	
	C) Models to Subtract Fractions with Unlike Denominators	

## Chapter 8 Multiplying Fractions

Lesson	Topic	NGSSS
8-1 Multiplying Whole Numbers and Unit Fractions	A) Multiplication as Repeated Addition	MAFS.4.NF.2.4.a, MAFS.4.NF.2.4.c
	B) Fractions as Whole Numbers Times Unit Fractions	
	C) Multiplying Whole Numbers and Unit Fractions	
8-2 Multiplying Whole Numbers and Fractions	A) Multiplying Whole Numbers and Fractions	MAFS.4.NF.2.4.b, MAFS.4.NF.2.4.c
	B) Changing Multiplying by a Fraction to Multiplying by a Unit Fraction	

# Knowre Math: Grade 4 Curriculum

## Chapter 9 Decimals

Lesson	Topic	NGSSS
9-1 Decimal Models	A) Models of Decimals	MAFS.4.NF.3.6
	B) Models to Write Equivalent Fractions and Decimals	
9-2 Decimals on a Number Line	A) Writing Decimals Shown on Number Lines	MAFS.4.NF.3.6
	B) Showing Decimals on Number Lines	
9-3 Decimal Place Value	A) Decimal Place Value	MAFS.5.NBT.1.3.a
	B) Reading and Writing Decimals	
	C) Values of Digits in Decimals	
9-4 Comparing and Ordering Decimals	A) Models to Compare Decimals	MAFS.4.NF.3.7
	B) Comparing Decimals	
	C) Ordering Decimals	
9-5 Decimals and Fractions	A) Writing Decimals as Fractions	MAFS.4.NF.3.6
	B) Writing Fractions as Decimals	

## Chapter 10 Measurement and Data

Lesson	Topic	NGSSS
10-1 Customary Units of Length	A) Estimating Customary Units of Length	MAFS.4.MD.1.1, MAFS.4.MD.1.2
	B) Converting Customary Units of Length	
10-2 Customary Units of Volume and Weight	A) Estimating Customary Units of Volume	MAFS.4.MD.1.1, MAFS.4.MD.1.2
	B) Converting Customary Units of Volume	
	C) Estimating Customary Units of Weight	
	D) Converting Customary Units of Weight	
10-3 Metric Units of Length	A) Estimating Metric Units of Length	MAFS.4.MD.1.1, MAFS.4.MD.1.2
	B) Converting Metric Units of Length	
10-4 Metric Units of Volume and Mass	A) Estimating Metric Units of Volume	MAFS.4.MD.1.1, MAFS.4.MD.1.2
	B) Converting Metric Units of Volume	
	C) Estimating Metric Units of Mass	
	D) Converting Metric Units of Mass	
10-5 Units of Time and Elapsed Time	A) Converting Units of Time	MAFS.4.MD.1.1, MAFS.4.MD.1.2
	B) Elapsed Time	
10-6 Line Plots	A) Line Plots and Data Sets	MAFS.4.MD.2.4
	B) Interpreting Data in Line Plots	



# Knowre Math: Grade 4 Curriculum

## Chapter 11 Points, Lines, and Angles

Lesson	Topic	NGSSS
11-1 Points and Lines	A) Points and Lines	MAFS.4.G.1.1
	B) Parallel and Perpendicular Lines	
11-2 Segments, Rays, and Angles	A) Segments	MAFS.4.G.1.1
	B) Rays	
	C) Angles	
11-3 Angle Measures	A) Angle Measurement	MAFS.4.MD.3.5.a MAFS.4.MD.3.5.b MAFS.4.MD.3.6, MAFS.4.MD.3.7, MAFS.4.G.1.1
	B) Angle Addition	

## Chapter 12 Triangles and Quadrilaterals

Lesson	Topic	NGSSS
12-1 Classifying Triangles	A) Angle Classification	MAFS.4.G.1.2
	B) Angle Measures to Classify Triangles	
12-2 Classifying Quadrilaterals	A) Types of Quadrilaterals	MAFS.4.G.1.2
12-3 Perimeter of Rectangles and Squares	A) Perimeters of Rectangles	MAFS.4.MD.1.3
	B) Perimeters of Squares	
12-4 Area of Rectangles and Squares	A) Areas of Rectangles and Squares Given Figures	MAFS.4.MD.1.3
	B) Areas of Rectangles and Squares Given Descriptions	
12-5 Lines of Symmetry	A) Identifying Lines of Symmetry	MAFS.4.G.1.3
	B) Figures with a Given Number of Lines of Symmetry	
	C) Results of Reflecting Over Lines of Symmetry	