

# Knowre Math: **Grade 4** Curriculum

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## Chapter 1 Whole Numbers

Lesson	Topic	MGSE
1-1 Place Value	A) Place Values to Millions	MGSE4.NBT.1, MGSE4.NBT.2
	B) Expanded and Standard Form of Numbers	
1-2 Reading Numbers	A) Reading Numbers to Millions	MGSE4.NBT.2
1-3 Writing Numbers	A) Writing Numbers to Millions	MGSE4.NBT.2
1-4 Comparing Numbers	A) Comparing Numbers with Six or Fewer Digits	MGSE4.NBT.2
1-5 Ordering Numbers	A) Ordering Whole Numbers	
1-6 Rounding	A) Rounding to a Given Place Value	MGSE4.NBT.3
	B) Rounding to a Lead Digit	

## Chapter 2 Adding and Subtracting Whole Numbers

Lesson	Topic	MGSE
2-1 Vertical Addition	A) Vertical Addition of Two Numbers with Six or Fewer Digits	MGSE4.OA.3, MGSE4.NBT.4
	B) Vertical Addition of Three or More Numbers	
2-2 Horizontal Addition	A) Horizontal Addition of Two Numbers	MGSE4.OA.3, MGSE4.NBT.4
	B) Horizontal Addition of Three or More Numbers	
2-3 Vertical Subtraction	A) Vertical Subtraction of Numbers with Six or Fewer Digits	MGSE4.OA.3, MGSE4.NBT.4
2-4 Horizontal Subtraction	A) Horizontal Subtraction of Two Numbers	MGSE4.OA.3, MGSE4.NBT.4
	B) Horizontal Addition or Subtraction of Three or More Numbers	
2-5 Addition and Subtraction Relations	A) Relationships Between Addition and Subtraction Sentences	MGSE4.OA.3, MGSE4.NBT.4
	B) Missing Numbers in Addition and Subtraction Sentences	
2-6 Estimating Sums and Differences	A) Estimating Sums and Differences	MGSE4.OA.3

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## Chapter 3 Multiplying Whole Numbers

Lesson	Topic	MGSE
3-1 Basic Multiplication Facts	A) Single Digit Multiplication	MGSE4.OA.1.a, MGSE4.OA.1.b, MGSE4.OA.2, MGSE4.OA.3
3-2 Products with Multiples of 10	A) Multiplying a One-Digit Number and Ten	MGSE4.OA.1.a, MGSE4.OA.1.b, MGSE4.OA.2, MGSE4.OA.3,
	B) Pattern of Zeros – Multiplication	MGSE4.NBT.1, MGSE4.NBT.5
3-3 Multiply by One-Digit Numbers - Models	A) Base Ten Blocks to Multiply by One-Digit Numbers	MGSE4.OA.3, MGSE4.NBT.5
	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	MGSE4.OA.3, MGSE4.NBT.5
3-5 Multiplying by One-Digit Numbers - Standard Algorithm with Regrouping	A) Standard Algorithm to Multiply by One-Digit Numbers with Regrouping	MGSE4.OA.3, MGSE4.NBT.5
3-6 Multiplying Two-Digit Numbers - Models	A) Tables to Multiply Two-Digit Numbers	MGSE4.OA.3, MGSE4.NBT.5
	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	MGSE4.OA.3, MGSE4.NBT.5
	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	MGSE4.OA.3, MGSE4.NBT.5
	B) Horizontal Multiplication of Two-Digit Numbers without Regrouping	
3-9 Horizontal Multiplication - Regrouping	A) Horizontal Multiplication of One-Digit Numbers with Regrouping	MGSE4.OA.3, MGSE4.NBT.5
	B) Horizontal Multiplication of Two-Digit Numbers with Regrouping	
3-10 Estimating Products	A) Estimating Products	MGSE4.OA.3

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## Chapter 4 Dividing Whole Numbers

Lesson	Topic	MGSE
4-1 Basic Division Facts	A) One-Digit Quotients When Dividing by One-Digit Numbers	MGSE4.OA.3
4-2 Quotients with Multiples of Ten	A) One Digit Quotients When Dividing by Ten	MGSE4.OA.3,
	B) Pattern of Zeros - Division	MGSE4.NBT.1
4-3 Dividing by One-Digit Numbers with No Remainders - Models	A) Base Ten Blocks to Divide Two-Digit by One-Digit Numbers	MGSE4.OA.3,
	B) Base Ten Blocks to Divide by Three-Digit by One-Digit Numbers	MGSE4.NBT.6
4-4 Dividing by One-Digit Numbers with No Remainders - Partial Quotients	A) Partial Quotients to Divide by One-Digit Numbers	MGSE4.OA.3, MGSE4.NBT.6
4-5 Dividing by One-Digit Numbers with No Remainders - Standard Algorithm	A) Long Division to Divide by One-Digit Numbers	MGSE4.OA.3, MGSE4.NBT.6
4-6 Dividing by One-Digit Numbers with Remainders - Models	A) Quotient and Remainder from Base Ten Blocks	MGSE4.OA.3, MGSE4.NBT.6
	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	MGSE4.OA.3, MGSE4.NBT.6
	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	MGSE4.OA.3, MGSE4.NBT.6
4-9 Horizontal Division - No Remainders	A) Horizontal Division by One-Digit Numbers	MGSE4.OA.3,
	B) Estimating Quotients	MGSE4.NBT.6
4-10 Horizontal Division - Remainders	A) Horizontal Division by One-Digit Numbers with Remainders	MGSE4.OA.3, MGSE4.NBT.6
4-11 Estimating Quotients	A) Estimating Quotients	MGSE4.OA.3

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## Chapter 5 Operations and Patterns

Lesson	Topic	MGSE
5-1 Multiplication and Division Relations	A) Relationships Between Multiplication and Division Sentences	MGSE4.NBT.6
	B) Missing Numbers in Multiplication and Division Sentences	
5-2 Mixed Operations	A) Horizontal Multiplication and Division of Three or More Numbers	MGSE4.OA.3
	B) Order of Operations to Evaluate Expressions without Grouping Symbols	
5-3 Expressions and Equations	A) Addition and Subtraction Expressions	MGSE4.OA.3
	B) Multiplication and Division Expressions	
	C) Expressions with More Than One Operation	
	D) Number Sentences	
5-4 Introduction to Patterns	A) Repeating Patterns	MGSE4.OA.5
5-5 Rules and Patterns	A) Patterns and Rules	MGSE4.OA.5
	B) Continuing and Completing Patterns	

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## Chapter 6 Fraction Concepts

<b>Lesson</b>	<b>Topic</b>	<b>MGSE</b>
6-1 Divisibility and Multiples	A) Divisibility by 2, 3, 5, and 10	MGSE4.OA.4
	B) Multiples	
6-2 Factors	A) Factors	MGSE4.OA.4
	B) Prime and Composite Numbers	
6-3 Introduction to Fractions	A) Word Form of Fractions	
	B) Writing Fractions from Models	
	C) Modeling Fractions with Fraction Bars	
6-4 Fractions on Number Lines	A) Writing Fractions from Number Lines	MGSE3.NF.2.a, MGSE3.NF.2.b
	B) Modeling Fractions on Number Lines	
6-5 Equivalent Fraction Models	A) Models to Write Equivalent Fractions	MGSE4.NF.1
	B) Models to Simplify Fractions	
	C) Models to Identify Equivalent Fractions	
6-6 Equivalent Fractions	A) Writing Equivalent Fractions	MGSE4.NF.1
	B) Simplifying Fractions	
6-7 Comparing Fractions	A) Comparing Fractions with the Same Denominator	MGSE4.NF.2
	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	MGSE4.NF.2
	B) Ordering Fractions with Different Numerators or Denominators	

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## Chapter 7 Fraction Addition, Subtraction, and Multiplication

Lesson	Topic	MGSE
7-1 Fraction Decomposition with Models	A) Fractions Bars to Decompose Fractions	MGSE4.NF.3.a, MGSE4.NF.3.b, MGSE4.NF.3.c, MGSE4.NF.3.d
	B) Number Lines to Decompose Fractions	
7-2 Fraction Decomposition with Same Denominators	A) Decomposition of Fractions	MGSE4.NF.3.a, MGSE4.NF.3.b, MGSE4.NF.3.c, MGSE4.NF.3.d
7-3 Add Fractions - No Regrouping	A) Models to Add Fractions with Like Denominators - No Regrouping	MGSE4.NF.3.a, MGSE4.NF.3.c, MGSE4.NF.3.d
	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	MGSE4.NF.3.a, MGSE4.NF.3.c, MGSE4.NF.3.d
	B) Models to Add Fractions with Like Denominators - Regrouping	
7-5 Adding Fractions - Regrouping	A) Decomposition to Write Improper Fractions as Mixed Numbers	MGSE4.NF.3.a, MGSE4.NF.3.c, MGSE4.NF.3.d
	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	MGSE4.NF.3.a, MGSE4.NF.3.c, MGSE4.NF.3.d
	B) Horizontal Addition with Mixed Numbers - Regrouping	
7-7 Subtracting Fractions - No Regrouping	A) Models to Subtract Fractions with Like Denominators	MGSE4.NF.3.a, MGSE4.NF.3.c, MGSE4.NF.3.d
	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	MGSE4.NF.3.a, MGSE4.NF.3.c, MGSE4.NF.3.d
	B) Vertical Subtraction with Mixed Numbers - Regrouping	

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

Lesson	Topic	MGSE
7-9 Subtracting Mixed Numbers Horizontally	A) Horizontal Subtraction with Mixed Numbers - No Regrouping	MGSE4.NF.3.a, MGSE4.NF.3.c, MGSE4.NF.3.d
	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	MGSE4.NF.3.a, MGSE4.NF.3.c, MGSE4.NF.3.d, MGSE4.NF.5
	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	MGSE4.NF.4.a, MGSE4.NF.4.c
	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	MGSE4.NF.4.b, MGSE4.NF.4.c
	B) Changing Multiplying by a Fraction to Multiplying by a Unit Fraction	

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## Chapter 8 Decimals

Lesson	Topic	MGSE
8-1 Decimal Models - Tenths	A) Models of Decimals Less Than One - Tenths	MGSE4.NF.6
	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	MGSE4.NF.6
	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	MGSE4.NF.6
8-4 Decimals on a Number Line - Hundredths	A) Number Lines and Decimals - Hundredths	MGSE4.NF.6
8-5 Decimal Place Value	A) Decimal Place Value	
	B) Reading and Writing Decimals	
	C) Values of Digits in Decimals	
8-6 Comparing and Ordering Decimals	A) Models to Compare Decimals	MGSE4.NF.7
	B) Comparing Decimals	
	C) Ordering Decimals	
8-7 Decimals and Fractions	A) Writing Decimals as Fractions	MGSE4.NF.6
	B) Writing Fractions as Decimals	



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## Chapter 9 Measurement and Data

<b>Lesson</b>	<b>Topic</b>	<b>MGSE</b>
9-1 Customary Units of Length	A) Estimating Customary Units of Length	MGSE4.MD.1.b, MGSE4.MD.2
	B) Converting Customary Units of Length	
9-2 Customary Units of Volume	A) Estimating Customary Units of Volume	MGSE4.MD.1.a, MGSE4.MD.1.b, MGSE4.MD.2
	B) Converting Customary Units of Volume	
9-3 Customary Units of Weight	A) Estimating Customary Units of Weight	MGSE4.MD.1.b, MGSE4.MD.2
	B) Converting Customary Units of Weight	
9-4 Metric Units of Length	A) Estimating Metric Units of Length	MGSE4.MD.1.b, MGSE4.MD.2
	B) Converting Metric Units of Length	
9-5 Metric Units of Volume and Mass	A) Estimating Metric Units of Volume	MGSE4.MD.1.b, MGSE4.MD.2
	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	MGSE4.MD.1.b, MGSE4.MD.2
9-7 Elapsed Time	A) a.m. or p.m.	MGSE4.MD.1.b, MGSE4.MD.2
	B) Elapsed Time	
9-8 Line Plots	A) Line Plots and Data Sets	MGSE4.MD.4
	B) Interpreting Data in Line Plots	

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## Chapter 10 Points, Lines, and Angles

Lesson	Topic	MGSE
10-1 Points, Lines, and Segments	A) Points and Lines	MGSE4.G.1
	B) Segments	
10-2 Parallel and Perpendicular Lines	A) Parallel and Perpendicular Lines	MGSE4.G.1
10-3 Rays and Angles	A) Rays	MGSE4.G.1
	B) Angles	
10-4 Measuring Angles	A) Degrees in a Circle	MGSE4.MD.5.a, MGSE4.MD.5.b, MGSE4.MD.6
	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	MGSE4.MD.5.a, MGSE4.MD.5.b, MGSE4.MD.6, MGSE4.G.1
	B) Drawing Angles Opening to the Left	
10-6 Using Addition and Subtraction to Find Angle Measures	A) Angle Addition	MGSE4.MD.7

## Chapter 11 Triangles and Quadrilaterals

Lesson	Topic	MGSE
11-1 Classifying Triangles	A) Angle Classification	MGSE4.G.2
	B) Angle Measures to Classify Triangles	
11-2 Classifying Quadrilaterals	A) Types of Quadrilaterals	MGSE4.G.2
11-3 Perimeter of Rectangles	A) Perimeter of Squares and Rectangles on a Grid	MGSE4.MD.3
	B) Perimeters of Rectangles	
11-4 Perimeter of Squares	A) Perimeters of Squares	MGSE4.MD.3
11-5 Area of Rectangles and Squares	A) Areas of Rectangles and Squares Given Figures	MGSE4.MD.3, MGSE4.MD.8
	B) Areas of Rectangles and Squares Given Descriptions	
11-6 Lines of Symmetry	A) Identifying Lines of Symmetry	MGSE4.G.3
	B) Figures with a Given Number of Lines of Symmetry	
	C) Results of Reflecting Over Lines of Symmetry	