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Knowre Math: **Grade 7** Curriculum

Chapter 1 Integer Addition and Subtraction

Lesson	Topic	MLS
1-1 Integers	A) Using Algebra Tiles to Model Integers	6.NS.C.6.a, 6.NS.C.6.b, 6.NS.C.7
	B) Integers on a Number Line	
	C) Comparing and Ordering Integers	
	D) Absolute Value	
1-2 Integer Addition with Tiles	A) Using Algebra Tiles to Model Addition of Integers with the Same Sign	7.NS.A.1.a, 7.NS.A.1.c, 7.NS.A.1.f, 7.NS.A.3
	B) Using Algebra Tiles to Model Addition of Integers with Different Signs	
1-3 Integer Addition with Number Lines	A) Using Number Lines to Model Addition of Integers with Different Signs	7.NS.A.1.a, 7.NS.A.1.b, 7.NS.A.1.e, 7.NS.A.1.f, 7.NS.A.3
	B) Using Number Lines to Model Addition of Integers with the Same Sign	
1-4 Single-Digit Integer Addition	A) Adding One-Digit Integers	7.NS.A.1.a, 7.NS.A.1.f, 7.NS.A.3, 7.EEI.B.3.a
1-5 Integer Subtraction with Tiles	A) Using Algebra Tiles to Model Subtraction of Positive Integers	7.NS.A.1.a, 7.NS.A.1.d, 7.NS.A.1.f, 7.NS.A.3
	B) Using Algebra Tiles to Model Subtraction of Integers with Different Signs	
	C) Using Algebra Tiles to Model Subtraction of Negative Integers	
1-6 Single-Digit Integer Subtraction	A) Subtracting One-Digit Integers	7.NS.A.1.a, 7.NS.A.1.d, 7.NS.A.1.f, 7.NS.A.3, 7.EEI.B.3.a
1-7 Multi-Digit Integer Addition and Subtraction	A) Adding Multi-Digit Integers	7.NS.A.1.a, 7.NS.A.1.c, 7.NS.A.1.d, 7.NS.A.1.f, 7.NS.A.3, 7.EEI.B.3.a
	B) Subtracting Multi-Digit Integers	

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Chapter 2 Integer Operations

Lesson	Topic	MLS
2-1 Integer Multiplication	A) Patterns in Integer Multiplication	7.NS.A.2.a, 7.NS.A.2.f, 7.NS.A.3, 7.EEI.B.3.a
	B) Multiplying Integers	
2-2 Integer Division	A) Patterns in Integer Division	7.NS.A.2.a, 7.NS.A.2.c, 7.NS.A.2.f, 7.NS.A.3, 7.EEI.B.3.a
	B) Dividing Integers	
2-3 Exponents	A) Powers with Natural Exponents	7.NS.A.2.f, 7.NS.A.3, 7.EEI.B.3.a
2-4 Order of Operations	A) Order of Operations with Integers	7.NS.A.1.a, 7.NS.A.1.d, 7.NS.A.1.f, 7.NS.A.2.a, 7.NS.A.2.f, 7.NS.A.3, 7.EEI.B.3.a
	B) Evaluating Expressions with Variables	

Chapter 3 Rational Numbers

Lesson	Topic	MLS
3-1 GCF and LCM	A) Prime and Composite Numbers	7.EEI.B.3.a
	B) Prime Factorization	
	C) Greatest Common Factors	
	D) Least Common Multiples	
3-2 Equivalent Fractions	A) Equivalent Fractions	7.EEI.B.3.a
3-3 Converting Fractions and Decimals	A) Writing Fractions as Decimals	7.NS.A.2.d, 7.NS.A.2.e, 7.EEI.B.3.a
	B) Writing Decimals as Fractions	
3-4 Comparing and Ordering Rational Numbers	A) Rational Numbers on a Number Line	7.EEI.B.3.a
	B) Comparing and Ordering Positive and Negative Decimals	
	C) Comparing and Ordering Positive and Negative Fractions	
3-5 Adding and Subtracting Fractions	A) Using Integer Rules to Add and Subtract Fractions with Common Denominators	7.NS.A.1.a, 7.NS.A.1.d, 7.NS.A.1.f, 7.NS.A.3, 7.EEI.B.3.a
	B) Using Integer Rules to Add and Subtract Fractions with Different Denominators	
3-6 Multiplying and Dividing Fractions	A) Using Integer Rules to Multiply Fractions	7.NS.A.2.a, 7.NS.A.2.b, 7.NS.A.2.f, 7.NS.A.3, 7.EEI.B.3.a
	B) Using Integer Rules to Divide Fractions	

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Chapter 3 Rational Numbers (cont.)

Lesson	Topic	MLS
3-7 Operations with Rational Numbers	A) Comparing Rational Numbers	7.NS.A.1.a, 7.NS.A.1.d, 7.NS.A.1.f, 7.NS.A.2.a, 7.NS.A.2.f, 7.NS.A.3, 7.EEI.B.3.a
	B) Adding and Subtracting Rational Numbers	
	C) Multiplying and Dividing Rational Numbers	
	D) Order of Operations and Rational Numbers	

Chapter 4 Expressions and Properties

Lesson	Topic	MLS
4-1 Representations of Algebraic Expressions	A) Parts of Variable Expressions	
	B) Using Algebra Tiles to Model Algebraic Expressions	
4-2 Operations and Variable Expressions	A) Omitting Multiplication Symbols with Variables	7.EEI.A.1, 7.EEI.A.2
	B) Coefficients	
4-3 Algebraic Expressions	A) Writing Variable Expressions	7.EEI.A.2
4-4 Properties of Numbers	A) Commutative Property	7.EEI.A.2
	B) Associative Property	
	C) Identity Property	
	D) Inverse Property	
4-5 Modeling the Distributive Property	A) Using Algebra Tiles to Multiply a Monomial and a Binomial	7.EEI.A.2
	B) Using Tables to Multiply a Monomial and a Binomial	
4-6 Distributive Property	A) Using the Distributive Property to Write Equivalent Expressions	7.EEI.A.1, 7.EEI.A.2
4-7 Simplifying Algebraic Expressions	A) Using Algebra Tiles to Combine Like Terms	7.EEI.A.1, 7.EEI.A.2
	B) Simplifying Expressions with Like Terms	

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Chapter 5 Solving Equations

Lesson	Topic	MLS
5-1 Equations	A) Identifying Equations and Expressions	7.EEI.B.4.a
	B) Writing Equations	
	C) Solutions of Equations	
5-2 Introduction to Bar Models	A) Showing One-Step Equations with Bar Models	7.EEI.B.4.a
	B) Showing Two-Step Equations with Bar Models	
5-3 Solving One-Step Equations with Bar Models	A) Solutions of One-Step Equations in Bar Models	7.EEI.B.4.a
	B) Using Bar Models to Solve One-Step Addition Equations	
	C) Using Bar Models to Solve One-Step Subtraction Equations	
	D) Using Bar Models to Solve One-Step Multiplication Equations	
5-4 Solving One-Step Addition and Subtraction Equations	A) Inverse Operation of Addition	7.EEI.B.4.a
	B) Solving One-Step Equations with the Subtraction Property of Equality	
	C) Inverse Operation of Subtraction	
	D) Solving One-Step Equations with the Addition Property of Equality	
5-5 Solving One-Step Multiplication and Division Equations	A) Inverse Operation of Multiplication	7.EEI.B.4.a
	B) Solving One-Step Equations with the Division Property of Equality	
	C) Inverse Operation of Division	
	D) Solving One-Step Equations with the Division Property of Equality	
5-6 Solving Two-Step Equations	A) Solutions of Two-Step Equations in Bar Models	7.EEI.B.4.b
	B) Using Bar Models to Solve Two-Step Equations	
	C) Solving Two-Step Equations	
5-7 Solving Multi-Step Equations with Bar Models	A) Using Bar Models to Solve Multi-Step Equations with Variables on Both Sides	7.EEI.B.4.b
	B) Using Bar Models to Solve Multi-Step Equations with the Distributive Property	
	C) Using Bar Models to Solve Multi-Step Equations with the Distributive Property and Variables on Both Sides	

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Chapter 5 Solving Equations (cont.)

Lesson	Topic	MLS
5-8 Solving Multi-Step Equations	A) Solving Multi-Step Equations	7.EEI.B.4.b
	B) Solving Equations with Variables on Both Sides	
5-9 Solving Equations with Rational Numbers	A) Solving Equations with Grouping Symbols in the Numerator	7.EEI.B.4.b
	B) Using the Multiplicative Inverse to Solve Equations	
	C) Solving Equations with Fractions	
	D) Solving Equations with Decimals	

Chapter 6 Solving Inequalities

Lesson	Topic	MLS
6-1 Inequalities	A) Reading and Writing Inequalities	7.EEI.B.4.a, 7.EEI.B.4.c
	B) Solutions of Inequalities	
	C) Graphs of Inequalities	
6-2 Solving One-Step Addition and Subtraction Inequalities	A) Writing Inequalities	7.EEI.B.4.a, 7.EEI.B.4.c
	B) Solutions of Inequalities	
	C) Solving One-Step Inequalities by Adding or Subtracting on Both Sides	
6-3 Solving One-Step Multiplication and Division Inequalities	A) Solving One-Step Inequalities by Multiplying or Dividing Both Sides by a Positive Number	7.EEI.B.4.a, 7.EEI.B.4.c
	B) Solving One-Step Inequalities by Multiplying or Dividing Both Sides by a Negative Number	
6-4 Solving Multi-Step Inequalities	A) Solving Two-Step Inequalities	7.EEI.B.4.c
	B) Solving Multi-Step Inequalities	
	C) Solving Inequalities with Variables on Both Sides	

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Chapter 7 Ratio, Proportion, and Similarity

Lesson	Topic	MLS
7-1 Unit Rates	A) Unit Rates	7.RP.A.1, 7.RP.A.2.b, 7.RP.A.2.c, 7.RP.A.2.d, 7.RP.A.3
	B) Unit Rates from Tables and Graphs	
	C) Unit Rates to Find Values	
7-2 Proportions	A) Defining Proportions	7.RP.A.2.a, 7.RP.A.3
	B) Solving Proportions	
	C) Writing Proportions	
7-3 Rate Conversions	A) Converting Units Within a Measurement System	7.RP.A.1, 7.RP.A.2.a, 7.RP.A.2.b, 7.RP.A.3
	B) Converting Units Between Measurement Systems	
	C) Converting Rates	
7-4 Similarity	A) Angle Measures in Similar Triangles	7.RP.A.1, 7.RP.A.2.a, 7.RP.A.2.b, 7.RP.A.3
	B) Side Lengths in Similar Figures	
7-5 Scale	A) Determining Scale	7.RP.A.2.a, 7.RP.A.2.b, 7.RP.A.3, 7.GM.A.1
	B) Using Scale	

Chapter 8 Percents

Lesson	Topic	MLS
8-1 Fractions, Decimals, and Percents	A) Converting Between Fractions and Percents	7.EEI.B.3.a
	B) Converting Between Decimals and Percents	
	C) Using Division to Convert Fractions to Percents	
8-2 Proportions with Percents	A) Percent Proportions	7.RP.A.2.a, 7.RP.A.3
8-3 Proportions with Equations	A) Percent Equations	7.RP.A.2.a, 7.RP.A.3
8-4 Reasoning with Percents	A) Mental Math to Find a Percent of a Number	7.RP.A.3, 7.NS.A.3, 7.EEI.B.3.a, 7.EEI.B.3.b
	B) Estimating with Percents	
8-5 Percent Change	A) Amount of Change	7.RP.A.3
	B) Percent Change	
8-6 Discounts and Markups	A) Discount	7.RP.A.3
	B) Markup	

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Chapter 9 Graphs and Functions

Lesson	Topic	MLS
9-1 Coordinate Plane	A) Identifying Quadrants and Axes of Coordinate Planes	6.GM.A.3.a
	B) Graphing Points	
	C) Writing the Coordinates of Points	
	D) Identifying Quadrants and Axes from Coordinates	
9-2 Relations	A) Representing Relations in Different Forms	6.EEI.C.9.b
	B) Input and Output	
9-3 Domain and Range	A) Independent and Dependent Variables	6.EEI.C.9.b
	B) Domain and Range	
	C) Relations and Functions	
9-4 Linear Functions	A) Graphs of Linear Functions	6.EEI.C.9.a, 6.EEI.C.9.b
	B) Using Linear Functions to Complete Tables	
	C) Graphing Linear Functions	
	D) Writing Linear Functions	
	E) Identifying Intercepts	
9-5 Direct Variation Graphs	A) Graphs of Direct Variation	7.RP.A.2.a, 7.RP.A.2.b, 7.RP.A.2.c, 7.RP.A.2.d
	B) Equations of Direct Variation	
9-6 Direct Variation Tables and Equations	A) Tables of Direct Variation	7.RP.A.2.a, 7.RP.A.2.b
	B) Direct Variation Equations and Coordinate Pairs	

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Chapter 10 Angles and Triangles

Lesson	Topic	MLS
10-1 Points and Lines	A) Points	4.GM.A.1
	B) Lines	
	C) Rays	
	D) Segments	
10-2 Angles	A) Parts of Angles	7.GM.B.5
	B) Naming Angles	
	C) Adjacent Angles	
	D) Angle Measures	
10-3 Complementary and Supplementary Angles	A) Complementary Angles	7.GM.B.5
	B) Supplementary Angles	
10-4 Linear Pairs and Vertical Angles	A) Linear Pairs	7.GM.B.5
	B) Vertical Angles	
10-5 Lengths of Sides in Triangles	A) Relationship Among Side Lengths in a Triangle	7.GM.A.2.a
	B) Possible Lengths of Longest or Shortest Sides in a Triangle	
10-6 Angle Measures in Triangles	A) Sum of the Measure of Interior Angles of a Triangle	7.GM.A.2.a
	B) Finding a Missing Angle Measure in a Triangle	

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Chapter 11 Area, Surface Area, and Volume

Lesson	Topic	MLS
11-1 Area of Polygons	A) Areas of Triangles and Quadrilaterals	7.GM.B.6.a
	B) Solving Area Equations to Find Missing Measurements	
11-2 Circumference of Circles	A) Parts of Circles	7.GM.A.4.a, 7.GM.A.4.b
	B) Relationship Between Radius and Diameter	
	C) Circumference	
11-3 Area of Circles	A) Areas of Circles from Radius	7.GM.A.4.a, 7.GM.A.4.b, 7.GM.B.6.a
	B) Areas of Circles from Diameter	
11-4 Naming Three-Dimensional Solids	A) Bases of Solids	7.GM.A.3
	B) Naming Solids	
	C) Cross Sections of Solids	
11-5 Surface Area of Cylinders and Right Prisms	A) Lateral Faces of Prisms	7.GM.B.6.a, 7.GM.B.6.b
	B) Surface Areas of Prisms	
	C) Surface Areas of Cylinders	
11-6 Volume of Cylinders and Right Prisms	A) Volumes of Prisms	7.GM.B.6.a, 7.GM.B.6.b
	B) Volumes of Cylinders	
11-7 Surface Area of Right Pyramids	A) Lateral Faces of Pyramids	7.GM.B.6.a, 7.GM.B.6.b
	B) Slant Height	
	C) Surface Areas of Pyramids	
11-8 Volume of Pyramids and Cones	A) Volumes of Pyramids	7.GM.B.6.a, 7.GM.B.6.b
	B) Volumes of Cones	

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Chapter 12 Probability

Lesson	Topic	MLS
12-1 Outcomes	A) Numbers that Represent Probability	7.DSP.C.5.b
	B) Possible Outcomes	
	C) Events	
	D) Favorable Outcomes	
	E) Likely and Unlikely Events	
12-2 Experimental Probability	A) Equation for Experimental Probability	7.DSP.C.5.a, 7.DSP.C.7.b
	B) Experimental Probability of Single Event	
	C) Experimental Probability of Multiple Events	
12-3 Theoretical Probability	A) Equation for Theoretical Probability	7.DSP.C.5.a, 7.DSP.C.6.a, 7.DSP.C.6.b, 7.DSP.C.6.c, 7.DSP.C.7.a, 7.DSP.C.7.b
	B) Theoretical Probability of Single Event	
	C) Theoretical Probability of Multiple Events	
12-4 Compound Independent Events	A) Tree Diagrams and Outcomes of Independent Events	7.DSP.C.8.a, 7.DSP.C.8.b
	B) Tables and Outcomes of Independent Events	
	C) Using Multiplication to Count Outcomes for Independent Events	
12-5 Compound Dependent Events	A) Tree Diagrams and Outcomes of Dependent Events	7.DSP.C.8.a, 7.DSP.C.8.b
	B) Using Multiplication to Count Outcomes for Dependent Events	
12-6 Compound Probability	A) Probability Notation for Compound Events	7.DSP.C.7.a, 7.DSP.C.8.a, 7.DSP.C.8.b
	B) Probability of Independent Events	
	C) Probability of Dependent Events	

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Chapter 13 Data Analysis

Lesson	Topic	MLS
13-1 Populations, Samples, and Bias	A) Population	7.DSP.A.1.a, 7.DSP.A.1.c, 7.DSP.A.2
	B) Samples	
	C) Data Sets from Random Representative Samples	
13-2 Making Inferences from Data	A) Samples and Conclusions	7.DSP.A.1.a, 7.DSP.A.1.b, 7.DSP.A.1.c, 7.DSP.A.2, 7.DSP.B.4
	B) Samples and Predictions	
	C) Supporting Predictions and Conclusions	
13-3 Measures of Center	A) Mean	7.DSP.A.1.a, 7.DSP.B.3, 7.DSP.B.4
	B) Median	
	C) Mean and Median of Same Data Set	
13-4 Measures of Variation	A) Range	7.DSP.A.1.a, 7.DSP.B.3, 7.DSP.B.4
	B) MAD	
	C) Quartiles and IQR	
	D) Measures of Variation and Measures of Center	
13-5 Comparative Inferences	A) Dot Plots and Measures of Center and Variability	7.DSP.A.1.a, 7.DSP.A.2, 7.DSP.B.3, 7.DSP.B.4
	B) Mean as a Multiple of MAD	
	C) Making Statements about Data Sets from Measures of Center and Variability	