

7.MP MATHEMATICAL PRACTICES

The Standards for Mathematical Practice describe the skills that mathematics educators should seek to develop in their students. The descriptions of the mathematical practices in this document provide examples of how student performance will change and grow as students engage with and master new and more advanced mathematical ideas across the grade levels.

Standard	Correlation
<p>7.MP.1 Make Sense of problems and persevere in solving them.</p> <p>In Grade 7, students solve problems involving ratios and rates and discuss how they solved them. Students solve real-world problems through the application of algebraic and geometric concepts. Students seek the meaning of a problem and look for efficient ways to represent and solve it. They may check their thinking by asking themselves, “What is the most efficient way to solve the problem?”, “Does this make sense?”, and “Can I solve the problem in a different way?” When students compare arithmetic and algebraic solutions to the same problem, they identify correspondences between different approaches.</p>	<p>This practice, as well as all practices are evident in every lesson. Icons indicate which practice is emphasized in the lesson.</p>
<p>7.MP.2 Reason abstractly and quantitatively.</p> <p>In Grade 7, students represent a wide variety of real-world contexts through the use of real numbers and variables in mathematical expressions, equations, and inequalities. Students contextualize to understand the meaning of the number or variable as related to the problem and decontextualize to manipulate symbolic representations by applying properties of operations.</p>	<div data-bbox="898 753 1136 1019" data-label="Image"> </div> <p>Activities that use this practice have an icon located throughout the book. Please reference Teachers Manual FM10-FM11.</p> <p>Example: On page M1-12, Activity 1.3 has icon in header.</p>
<p>7.MP.3 Construct viable arguments and critique the reasoning of others.</p> <p>In Grade 7, students construct arguments using verbal or written explanations accompanied by expressions, equations, inequalities, models, and graphs, tables, and other data displays (e.g., box plots, dot plots, histograms, etc.). They further refine their mathematical communication skills through mathematical discussions in which they critically evaluate their own thinking and the thinking of other students. For example, as students notice when geometric conditions determine a unique triangle, more than one triangle, or no triangle, they have an opportunity to construct viable arguments and critique the reasoning of others. Students should be encouraged to answer questions such as these: “How did you get that?”, “Why is that true?”, or “Does that always work?” They explain their thinking to others and respond to others’ thinking.</p>	<div data-bbox="898 1149 1136 1416" data-label="Image"> </div> <p>Activities that use this practice have an icon located throughout the book. Please reference Teachers Manual FM10-FM11.</p> <p>Example: On page M1-12, Activity 1.3 has icon in header.</p>

Standard	Correlation
<p>7.MP.4 Model with mathematics. In Grade 7, students model problem situations symbolically, graphically, in tables, and contextually. Students form expressions, equations, or inequalities from real-world contexts and connect symbolic and graphical representations. Students use experiments or simulations to generate data sets and create probability models. Proportional relationships present opportunities for modeling. For example, for modeling purposes, the number of people who live in an apartment building might be taken as proportional to the number of stories in the building. Students should be encouraged to answer questions such as “What are some ways to represent the quantities?” or “How might it help to create a table, chart, or graph?”</p>	<div data-bbox="863 337 1167 524" data-label="Image"> </div> <p>Activities that use this practice have an icon located throughout the book. Please reference Teachers Manual FM10-FM11.</p> <p>Example: On page M1-11, Activity 1.2 has icon in header.</p>
<p>7.MP.5 Use appropriate tools strategically. Students consider available tools (including estimation and technology) when solving a mathematical problem and decide when certain tools might be helpful. For instance, students in Grade 7 may decide to represent similar data sets using dot plots with the same scale to visually compare the center and variability of the data. Students might use physical objects or applets to generate probability data and use graphing calculators or spreadsheets to manage and represent data in different forms. Teachers might ask, “What approach are you considering?” or “Why was it helpful to use ___?”</p>	<div data-bbox="863 716 1167 902" data-label="Image"> </div> <p>Activities that use this practice have an icon located throughout the book. Please reference Teachers Manual FM10-FM11.</p> <p>Example: On page M1-11, Activity 1.2 has icon in header.</p>
<p>7.MP.6 Attend to precision. In Grade 7, students continue to refine their mathematical communication skills by using clear and precise language in their discussions with others and in their own reasoning. Students define variables, specify units of measure, and label axes accurately. Students use appropriate terminology when referring to rates, ratios, probability models, geometric figures, data displays, and components of expressions, equations, or inequalities. Teachers might ask, “What mathematical language, definitions, or properties can you use to explain ___?”</p>	<div data-bbox="890 992 1140 1243" data-label="Image"> </div> <p>Activities that use this practice have an icon located throughout the book. Please reference Teachers Manual FM10-FM11.</p> <p>Example: On page M1-9, Activity 1.1 has icon in header.</p>

Standard	Correlation
<p>7.MP.7 Look for and make use of structure. Students routinely seek patterns or structures to model and solve problems. For instance, students recognize patterns that exist in ratio tables making connections between the constant of proportionality in a table with the slope of a graph. Students apply properties to generate equivalent expressions (e.g., $6 + 2nn = 2(3 + nn)$ by distributive property) and solve equations (e.g., $2c + 3 = 15$, $2c = 12$ by subtraction property of equality; $c = 6$ by division property of equality). Students compose and decompose two- and three-dimensional figures to solve real-world problems involving scale drawings, surface area, and volume. Students examine tree diagrams or systematic lists to determine the sample space for compound events and verify that they have listed all possibilities. Solving an equation such as $8 = 4(n - \frac{1}{2})$ is easier if students can see and make use of structure, temporarily viewing $(n - \frac{1}{2})$ as a single entity.</p>	<div data-bbox="898 331 1142 581" data-label="Image"> </div> <p>Activities that use this practice have an icon located throughout the book. Please reference Teachers Manual FM10-FM11.</p> <p>Example: On page M1-41, Activity 3.1 has icon in header.</p>
<p>7.MP.8 Look for an express regularity in repeated reasoning. In Grade 7, students use repeated reasoning to understand algorithms and make generalizations about patterns. During multiple opportunities to solve and model problems, they may notice that $a/b = c/d$ if and only if $ad = bc$ and construct other examples and models that confirm their generalization. Students should be encouraged to answer questions such as “How would we prove that ___?” or “How is this situation both similar to and different from other situations using these operations?”</p>	<div data-bbox="898 740 1142 990" data-label="Image"> </div> <p>Activities that use this practice have an icon located throughout the book. Please reference Teachers Manual FM10-FM11.</p> <p>Example: On page M1-41, Activity 3.1 has icon in header.</p>

7.RP RATIOS AND PROPORTIONAL RELATIONSHIPS

Analyze proportional relationships and use them to solve real-world and mathematical problems. (Standards 7.RP.1–3).

Standard	Correlation
<p>7.RP.1 Compute unit rates associated with ratios of fractions, including ratios of lengths, areas and other quantities measured in like or different units.</p> <p><i>For example, if a person walks $\frac{1}{2}$ mile in each $\frac{1}{4}$ hour, compute the unit rate as the complex fraction $\frac{1/2}{1/4}$ miles per hour, equivalently 2 miles per hour.</i></p>	<p>TEXTBOOK: Module 1 Topic/Lesson: T2L1: Unit Rate Representations (M1-51 thru M1-58) T2L2: Solving Problems with Ratios of Fractions (M1-59 thru M1-68)</p> <p>SKILLS PRACTICE: Module 1, Thinking Proportionally Topic 2: Fractional Rates and Unit Rates (pp. 9–13)</p> <p>MATHia: Module, Thinking Proportionally Unit: Ratio and Rate Reasoning Workspace: Fractional Rates; Comparing Rates</p>
<p>7.RP.2 Recognize and represent proportional relationships between quantities.</p>	
<p>7.RP.2.a Decide whether two quantities are in a proportional relationship, e.g., by testing for equivalent ratios in a table or graphing on a coordinate plane and observing whether the graph is a straight line through the origin.</p>	<p>TEXTBOOK: Module 1 Topic/Lesson: T3L1: Proportional Relationships (M1-91 thru M1-108) T3L4: Constant of Proportionality in Multiple Representations (M1-139 thru M1-160)</p> <p>SKILLS PRACTICE: Module 1, Thinking Proportionally Topic 3: Proportionality (pp. 14–37)</p> <p>MATHia: Module, Thinking Proportionally Unit: Proportional Reasoning Workspace: Solving Proportions using Equivalent Ratios; Solving Proportions using Means and Extremes</p>
<p>7.RP.2.b Identify the constant of proportionality (unit rate) in tables, graphs, equations, diagrams, and verbal descriptions of proportional relationships.</p>	<p>TEXTBOOK: Module 1 Topic/Lesson: T3L2: Constant or Proportionality (M1-109 thru M1-126) T3L4: Constant of Proportionality in Multiple Representations (M1-139 thru M1-160)</p> <p>SKILLS PRACTICE: Module 1, Thinking Proportionally Topic 3: Proportionality (pp. 14–37)</p> <p>MATHia: Module, Thinking Proportionally Unit: Proportional Reasoning Workspace: Solving Proportions using Equivalent Ratios; Solving Proportions using Means and Extremes</p>

Standard	Correlation
<p>7.RP.2.c Represent proportional relationships by equations.</p> <p><i>For example, if total cost t is proportional to the number n of items purchased at a constant price p, the relationship between the total cost and the number of items can be expressed as $t = pn$.</i></p>	<p>TEXTBOOK: Module 1 Topic/Lesson: T2L3: Solving Proportions Using Means and Extremes (M1-69 thru M1-90) T3L2: Constant or Proportionality (M1-109 thru M1-126) T3L4: Constant of Proportionality in Multiple Representations (M1-139 thru M1-160)</p> <p>SKILLS PRACTICE: Module 1, Thinking Proportionally Topic 2: Fractional Rates and Unit Rates (pp. 9–13); Topic 3: Proportionality (pp. 14–37)</p> <p>MATHia: Module, Thinking Proportionally Unit: Proportional Reasoning Workspace: Solving Proportions using Equivalent Ratios; Solving Proportions using Means and Extremes</p>
<p>7.RP.2.d Explain what a point (x, y) on the graph of a proportional relationship means in terms of the situation, with special attention to the points $(0, 0)$ and $(1, r)$ where r is the unit rate.</p>	<p>TEXTBOOK: Module 1 Topic/Lesson: T3L3: Identifying the Constant of Proportionality in Graphs (M1-127 thru M1-138) T3L4: Constant of Proportionality in Multiple Representations (M1-139 thru M1-160)</p> <p>SKILLS PRACTICE: Module 1, Thinking Proportionally Topic 3: Proportionality (pp. 14–37)</p> <p>MATHia: Module, Thinking Proportionally Unit: Proportional Reasoning; Representing Proportional Relationships Workspace: Solving Proportions using Equivalent Ratios; Solving Proportions using Means and Extremes; Introduction to Direct Variation; Writing Direct Variations Equations; Converting Between Proportions and Direct Variation Equations; Modeling Direct Variation; Determining Characteristics of Direct Variation Graphs</p>

Standard	Correlation
<p>7.RP.3 Use proportional relationships to solve multi-step ratio and percent problems.</p> <p><i>Examples: simple interest, tax, markups and markdowns, gratuities and commissions, fees, percent increase and decrease, percent error.</i></p>	<p>TEXTBOOK: Module 1; Module 2; Module 4</p> <p>Topic/Lesson: M1T2L3: Solving Proportions Using Means and Extremes (M1-69 thru M1-90) M1T4L1: Introducing Proportions to Solve Percent Problems (M1-161 thru M1-176) M1T4L2: Calculating Tips, Commissions, and Simple Interest (M1-177 thru M1-196) M1T4L3: Sales Tax, Income Tax, and Fees (M1-197 thru M1-208) M1T4L4: Percent Increase and Percent Decrease (M1-209 thru M1-222) M2T2L3: Simplifying Expressions to Solve Problems (M2-113 thru M2-124) M4T1L3: Determining Experimental Probability of Simple Events (M4-33 thru M4-46)</p> <p>SKILLS PRACTICE: Module 1, Thinking Proportionally; Module 4 Analyzing Populations and Probabilities Module 1, Topic 2: Fractional Rates and Unit Rates (pp. 9–13) Module 1, Topic 4: Proportional Relationships (pp. 38–48) Module 4, Topic 1: Introduction to Probability (pp. 100–108)</p> <p>MATHia: Module, Thinking Proportionally Unit: Percent Conversions; Proportional Reasoning and Percents; Problem Solving with Percents Using Proportional Relationships Workspace: Fractional Percent Models; Converting with Fractional Percents; Using Proportions to Solve Percent Problems; Solving Simple Percent Problems; Calculating Percent Change and Final Amounts; Using Percents and Percent Change</p>

7.NS THE NUMBER SYSTEM

Apply and extend previous understandings of operations with fractions to add, subtract, multiply, and divide rational numbers (Standards 7.NS.1–3).

Standard	Correlation
<p>7.NS.1 Apply and extend previous understandings of addition and subtraction to add and subtract rational numbers; represent addition and subtraction on a horizontal or vertical number line diagram.</p>	
<p>7.NS.1.a Describe situations in which opposite quantities combine to make 0. <i>For example, a hydrogen atom has 0 charge because its two constituents are oppositely charged.</i></p>	<p>TEXTBOOK: Module 2 Topic/Lesson: T1L1: Using Models to Understand Integer Addition (M2-7 thru M2-16) T1L3: Adding Integers, Part II (M2-31 thru M2-48)</p> <p>SKILLS PRACTICE: Module 2, Operating with Signed Numbers Topic 1: Adding and Subtracting Rational Numbers (pp. 49–54) Topic 2: Multiplying and Dividing Rational Numbers (pp. 54–58)</p> <p>MATHia: Module, Operating with Signed Numbers Unit: Integer Operations Workspace: Adding and Subtracting Integers; Using Number Lines to Add and Subtract Integers</p>
<p>7.NS.1.b Understand $p + q$ as the number located a distance q from p in the positive or negative direction, depending on whether q is positive or negative. Show that a number and its opposite have a sum of 0 (are additive inverses). Interpret sums of rational numbers by describing real-world contexts.</p>	<p>TEXTBOOK: Module 2 Topic/Lesson: T1L1: Using Models to Understand Integer Addition (M2-7 thru M2-16) T1L2: Adding Integers, Part I (M2-17 thru M2-30) T1 L3: Adding Integers, Part II (M2-31 thru M2-48)</p> <p>SKILLS PRACTICE: Module 2, Operating with Signed Numbers Topic 1: Adding and Subtracting Rational Numbers (pp. 49–54)</p> <p>MATHia: Module, Operating with Signed Numbers Unit: Integer Operations Workspace: Adding and Subtracting Integers; Using Number Lines to Add and Subtract Integers</p>
<p>7.NS.1.c Understand subtraction of rational numbers as adding the additive inverse, $p - q = p + (-q)$. Show that the distance between two rational numbers on the number line is the absolute value of their difference, and apply this principle in real-world contexts.</p>	<p>TEXTBOOK: Module 2 Topic/Lesson: T1L1: Using Models to Understand Integer Addition (M2-7 thru M2-16) T1L4: Subtracting Integers (M2-49 thru M2-68)</p> <p>SKILLS PRACTICE: Module 2, Operating with Signed Numbers Topic 1: Adding and Subtracting Rational Numbers (pp. 49–54)</p> <p>MATHia: Module, Operating with Signed Numbers Unit: Integer Operations Workspace: Adding and Subtracting Integers; Using Number Lines to Add and Subtract Integers</p>

Standard	Correlation
<p>7.NS.1.d Apply properties of operations as strategies to add and subtract rational numbers.</p>	<p>TEXTBOOK: Module 2 Topic/Lesson: T1L1: Using Models to Understand Integer Addition (M2-7 thru M2-16) T2L4: Using Number Properties to Interpret Expressions with Signed Numbers (M2-125 thru M2-138)</p> <p>SKILLS PRACTICE: Module 2, Operating with Signed Numbers Topic 1: Adding and Subtracting Rational Numbers (pp. 49–54) Topic 2: Multiplying and Dividing Rational Numbers (pp. 54–58)</p> <p>MATHia: Module, Operating with Signed Numbers Unit: Integer Operations Workspace: Using Order of Operations to Simplify Numeric Expressions (No Type In); Using Order of Operations to Simplify Numeric Expressions (Type In)</p>
<p>7.NS.2 Apply and extend previous understandings of multiplication and division and of fractions to multiply and divide rational numbers.</p>	
<p>7.NS.2.a Understand that multiplication is extended from fractions to rational numbers by requiring that operations continue to satisfy the properties of operations, particularly the distributive property, leading to products such as $(-1)(-1) = 1$ and the rules for multiplying signed numbers. Interpret products of rational numbers by describing real-world contexts.</p>	<p>TEXTBOOK: Module 2 Topic/Lesson: T2L1: Multiplying and Dividing Integers (M2-89 thru M2-102)</p> <p>SKILLS PRACTICE: Module 2, Operating with Signed Numbers Topic 2: Multiplying and Dividing Rational Numbers (pp. 54–58)</p> <p>MATHia: Module, Operating with Signed Numbers Unit: Integer Operations Workspace: Multiplying and Dividing Integers</p>
<p>7.NS.2.b Understand that integers can be divided, provided the divisor is not zero, and that every quotient of integers (with non-zero divisor) is a rational number. If p and q are integers, then $-(p/q) = (-p)/q = p/(-q)$. Interpret quotients of rational numbers by describing real-world contexts.</p>	<p>TEXTBOOK: Module 2 Topic/Lesson: T2L2: Quotients of Integers (M2-103 thru M2-112)</p> <p>SKILLS PRACTICE: Module 2, Operating with Signed Numbers Topic 2: Multiplying and Dividing Rational Numbers (pp. 54–58)</p> <p>MATHia: Module, Operating with Signed Numbers Unit: Integer Operations Workspace: Multiplying and Dividing Integers; Using Order of Operations to Simplify Numeric Expressions (No Type In); Using Order of Operations to Simplify Numeric Expressions (Type In)</p>

Standard	Correlation
<p>7.NS.2.c Apply properties of operations as strategies to multiply and divide rational numbers.</p>	<p>TEXTBOOK: Module 2 Topic/Lesson: T2L4: Using Number Properties to Interpret Expressions with Signed Numbers (M2-125 thru M2-138)</p> <p>SKILLS PRACTICE: Module 2, Operating with Signed Numbers Topic 2: Multiplying and Dividing Rational Numbers (pp. 54–58)</p> <p>MATHia: Module, Operating with Signed Numbers Unit: Integer Operations Workspace: Using Order of Operations to Simplify Numeric Expressions (No Type In); Using Order of Operations to Simplify Numeric Expressions (Type In)</p>
<p>7.NS.2.d Convert a rational number to a decimal using long division; know that the decimal form of a rational number terminates in 0s or eventually repeats.</p>	<p>TEXTBOOK: Module 2 Topic/Lesson: T2L2: Quotients of Integers (M2-103 thru M2-112)</p>
<p>7.NS.3 Solve real-world and mathematical problems involving the four operations with rational numbers. Computations with rational numbers extend the rules for manipulating fractions to complex fractions.</p>	<p>TEXTBOOK: Module 2 Topic/Lesson: T1L5: Adding and Subtracting Rational Numbers (M2-69 thru M2-88) T2L1: Multiplying and Dividing Integers (M2-89 thru M2-102) T2L3: Simplifying Expressions to Solve Problems (M2-113 thru M2-124) T2L4: Using Number Properties to Interpret Expressions with Signed Numbers (M2-125 thru M2-138)</p> <p>SKILLS PRACTICE: Module 2, Operating with Signed Numbers Topic 1: Adding and Subtracting Rational Numbers (pp. 49–54) Topic 2: Multiplying and Dividing Rational Numbers (pp. 54–58)</p> <p>MATHia: Module, Operating with Signed Numbers Unit: Integer Operations Workspace: Using Order of Operations to Simplify Numeric Expressions (No Type In); Using Order of Operations to Simplify Numeric Expressions (Type In)</p>

7.EE EXPRESSIONS AND EQUATIONS

Use properties of operations to generate equivalent expressions (Standards 7.EE.1–2). Solve real-life and mathematical problems using numerical and algebraic expressions and equations (Standards 7.EE.3–4).

Standard	Correlation
<p>7.EE.1 Apply properties of operations as strategies to add, subtract, factor, and expand linear expressions with rational coefficients.</p>	<p>TEXTBOOK: Module 3 Topic/Lesson: T1L2: Rewriting Expressions Using the Distributive Property (M3-19 thru M3-32) T1L3: Combining Like Terms (M3-33 thru M3-52)</p> <p>SKILLS PRACTICE: Module 3, Reasoning Algebraically Topic 1: Algebraic Expressions (pp. 59–63)</p> <p>MATHia: Module, Reasoning Algebraically Unit: Variable Expressions Workspace: Factoring Linear Expressions; Using Order of Operations to Simplify Algebraic Expressions (No Type In); Using Order of Operations to Simplify Algebraic Expressions (Type In)</p>
<p>7.EE.2 In a problem context, understand that rewriting an expression in an equivalent form can reveal and explain properties of the quantities represented by the expression and can reveal how those quantities are related.</p> <p><i>For example, a discount of 15% (represented by $p - 0.15p$) is equivalent to $(1 - 0.15)p$, which is equivalent to $0.85p$ or finding 85% of the original price.</i></p>	<p>TEXTBOOK: Module 3 Topic/Lesson: T1L3: Combining Like Terms (M3-33 thru M3-52) T3L2: Structure of Linear Equations (M3-130 thru M3-154)</p> <p>SKILLS PRACTICE: Module 3, Reasoning Algebraically Topic 1: Algebraic Expressions (pp. 59–63) Topic 3: Multiple Representations of Equations (pp. 78–99)</p> <p>MATHia: Module, Reasoning Algebraically Unit: Solving Linear Equations with Similar Terms Workspace: Solving by Combining Like Variable Terms and a Constant with Integers (No Type In); Solving by Combining Like Variable Terms and a Constant with Integers (Type In); Solving by Combining Like Variable Terms and a Constant with Decimals (No Type In); Solving by Combining Like Variable Terms and a Constant with Decimals (Type In)</p>

Standard	Correlation
<p>7.EE.3 Solve multi-step real-life and mathematical problems posed with positive and negative rational numbers in any form (whole numbers, fractions, and decimals), using tools strategically. Apply properties of operations to calculate with numbers in any form, convert between forms as appropriate, and assess the reasonableness of answers using mental computation and estimation strategies.</p> <p><i>For example: If a woman making \$25 an hour gets a 10% raise, she will make an additional 1/10 of her salary an hour, or \$2.50, for a new salary of \$27.50. If you want to place a towel bar 9 3/4 inches long in the center of a door that is 27 1/2 inches wide, you will need to place the bar about 9 inches from each edge; this estimate can be used as a check on the exact computation.</i></p>	<p>TEXTBOOK: Module 3 Topic/Lesson: T1L1: Evaluating Algebraic Expressions (M3-7 thru M3-18) T2L3: Using Inverse Operations to Solve Equations (M3-77 thru M3-94) T3L3: Building Inequalities and Equations to Solve Problems (M3-155 thru M3-168) T3L4: Using Multiple Representations to Solve Problems (M3-169 thru M3-180) T1L2: Introduction to Algebraic Expressions</p> <p>SKILLS PRACTICE: Module 3, Reasoning Algebraically Topic 1: Algebraic Expressions (pp. 59–63) Topic 2: Two-Step Equations and Inequalities (pp. 64–77) Topic 3: Multiple Representations of Equations (pp. 78–99)</p> <p>MATHia: Module, Reasoning with Expressions and Equations; Determining Unknown Quantities Unit: Solving Two-Step Equations Workspace: Checking Solutions to Linear Equations, Solving with Multiplication (No Type In); Solving with Multiplication (Type In); Solving with Division (No Type); Solving with Division (Type In); Solving Two-Step Equations</p>
<p>7.EE.4 Use variables to represent quantities in a real-world or mathematical problem, and construct simple equations and inequalities to solve problems by reasoning about the quantities.</p>	

Standard	Correlation
<p>7.EE.4.a Solve word problems leading to equations of the form $px + q = r$ and $p(x + q) = r$, where p, q, and r are specific rational numbers. Solve equations of these forms fluently. Compare an algebraic solution to an arithmetic solution, identifying the sequence of the operations used in each approach.</p> <p><i>For example, the perimeter of a rectangle is 54 cm. Its length is 6 cm. What is its width?</i></p>	<p>TEXTBOOK: Module 3 Topic/Lesson: T2L1: Mod Equations as Equal Expressions (M3-53 thru M3-64) T2L2: Solving Equations on a Double Number Line (M3-65 thru M3-76) T2L3: Using Inverse Operations to Solve Equations (M3-77 thru M3-94) T3L1: Representing Equations with Tables and Graphs (M3-125 thru M3-138) T3L2: Structure of Linear Equations (M3-139 thru M3-154) T3L3: Building Inequalities and Equations to Solve Problems (M3-155 thru M3-168) T3L4: Using Multiple Representations and Equations to Solve Problems (M3-169 thru M3-180)</p> <p>SKILLS PRACTICE: Module 3, Reasoning Algebraically Topic 1: Algebraic Expressions (pp. 59–63) Topic 2: Two-Step Equations and Inequalities (pp. 64–77) Topic 3: Multiple Representations of Equations (pp. 78–99)</p> <p>MATHia: Module, Reasoning with Expressions and Equations; Determining Unknown Quantities Unit: Modeling Two-Step Expressions and Equations; Solving Two-Step Equations; Solving Linear Equations with Similar Terms; The Coordinate Plane and Two-Step Equations Workspace: Using Picture Algebra with Equations; Modeling Two-Step Equations; Checking Solutions to Linear Equations; Solving with Multiplication (No Type In); Solving with Multiplication (Type In); Solving with Division (No Type); Solving with Division (Type In); Solving Two-Step Equations; Solving by Combining Like Variable Terms and a Constant with Integers (No Type In); Solving by Combining Like Variable Terms and a Constant with Integers (Type In); Solving by Combining Like Variable Terms and a Constant with Decimals (No Type In); Solving by Combining Like Variable Terms and a Constant with Decimals (Type In); Graphs of Equations; Using Graphs to Solve Equations</p>
<p>7.EE.4.b Solve word problems leading to inequalities of the form $px + q > r$ or $px + q < r$, where p, q, and r are specific rational numbers. Graph the solution set of the inequality and interpret it in the context of the problem.</p> <p><i>For example: As a salesperson, you are paid \$50 per week plus \$3 per sale. This week you want your pay to be at least \$100. Write an inequality for the number of sales you need to make, and describe the solutions.</i></p>	<p>TEXTBOOK: Module 3 Topic/Lesson: T2L4: Solving Inequalities with Inverse Operations (M3-95 thru M3-112) T3L3: Building Inequalities and Equations to Solve Problems (M3-155 thru M3-168)</p> <p>SKILLS PRACTICE: Module 3, Reasoning Algebraically Topic 2: Two-Step Equations and Inequalities (pp. 64–77) Topic 3: Multiple Representations of Equations (pp. 78–99)</p> <p>MATHia: Module, Reasoning Algebraically Unit: Solving Two-Step Inequalities; Problem Solving with Two-Step Equations and Inequalities Workspace: Graphing Inequalities with Rational Number; Solving Two-Step Linear Inequalities; Using Linear Equations and Inequalities; Solving Problems with Integers; Solving Problems with Decimals and Fractions</p>

7.G GEOMETRY

Draw, construct, and describe geometrical figures, and describe the relationships between them (Standards 7.G.1–3). Solve real-life and mathematical problems involving angle measure, circles, area, surface area, and volume (Standards 7.G.4–6).

Standard	Correlation
<p>7.G.1.a Compute actual lengths and areas from a scale drawing and reproduce a scale drawing at a different scale.</p>	<p>TEXTBOOK: Module 1 Topic/Lesson: T4L5: Scale and Scale Drawings {M1-223 thru M1-238}</p> <p>SKILLS PRACTICE: Module 1, Composing and Decomposing Topic 4: Thinking Proportionally (pp. 38–48)</p> <p>MATHia: Module, Thinking Proportionally Unit: Scale Drawings Workspace: Using Scale Drawings; Using Scale Factor</p>
<p>7.G.1.b Represent proportional relationships within and between similar figures.</p>	<p>TEXTBOOK: Module 1 Topic/Lesson: T4L5: Scale and Scale Drawings (M1-223 thru M1-238)</p> <p>SKILLS PRACTICE: Module 1, Composing and Decomposing Topic 4: Thinking Proportionally (pp. 38–48)</p> <p>MATHia: Module, Thinking Proportionally Unit: Scale Drawings Workspace: Using Scale Drawings; Using Scale Factor</p>
<p>7.G.2 Draw (freehand, with ruler and protractor, and with technology) geometric figures with given conditions.</p>	
<p>7.G.2.a Focus on constructing triangles from three measures of angles or sides, noticing when the conditions determine a unique triangle, more than one triangle, or no triangle.</p>	<p>TEXTBOOK: Module 5 Topic/Lesson: T1L1: Geometric Constructions (M5-7 thru M5-18) T1L3: Construct Triangles Given Sides (M5-39 thru M5-52) T1L4: Construct Triangles Given Angles (M5-53 thru M5-74)</p>
<p>7.G.2.b Focus on constructing quadrilaterals with given conditions noticing types and properties of resulting quadrilaterals and whether it is possible to construct different quadrilaterals using the same conditions.</p>	<p>TEXTBOOK: Module 5 Construction of quadrilaterals not directly taught in Course 2. Topic/Lesson: T1L1: Geometric Constructions (M5-7 thru M5-18)</p>
<p>7.G.3 Describe the two-dimensional figures that result from slicing three-dimensional figures, as in plane sections of right rectangular prisms and right rectangular pyramids.</p>	<p>TEXTBOOK: Module 5 Topic/Lesson: T2L1: Cross-Sections of Rectangular Prisms (M5-75 thru M5-96) T2L2: Cross-Sections of Rectangular Pyramids (M5-97 thru M5-106)</p>

Standard	Correlation
<p>7.G.4 Solve real-life and mathematical problems involving angle measure, circles, area, surface area, and volume.</p>	
<p>7.G.4.a Explore and understand the relationships among the circumference, diameter, area, and radius of a circle.</p>	<p>TEXTBOOK: Module 1 Topic/Lesson: T1L1: Exploring the Ratio of Circle Circumference to Diameter (M1-7 thru M1-18) T1L2: Area of Circles (M1-19 thru M1-32)</p> <p>SKILLS PRACTICE: Module 1, Thinking Proportionally Topic 1: Circles and Ratios (pp. 1–8)</p> <p>MATHia: Module, Circles and Ratios Unit: Circles Workspace: Calculating Circumference and Area of Circles</p>
<p>7.G.4.b Know and use the formulas for the area and circumference of a circle and use them to solve real world and mathematical problems.</p>	<p>TEXTBOOK: Module 1 Topic/Lesson: T1L3: Solving Area and Circumference Problems (M1-33 thru M1-50)</p> <p>SKILLS PRACTICE: Module 1, Thinking Proportionally Topic 1: Circles and Ratios (pp. 1–8)</p> <p>MATHia: Module, Circles and Ratios Unit: Circles Workspace: Calculating Circumference and Area of Circles</p>
<p>7.G.5 Use facts about supplementary, complementary, vertical, and adjacent angles in a multi-step problem to write, and use them to solve simple equations for an unknown angle in a figure.</p>	<p>TEXTBOOK: Module 5 Topic/Lesson: T1L2: Special Angle Relationships (M5-19 thru M5-38)</p> <p>SKILLS PRACTICE: Module 5, Constructing and Measuring Topic 1: Angles and Triangles (pp. 122–125)</p> <p>MATHia: Module, Constructing and Measuring Unit: Angle Properties Workspace: Calculating Angles; Classifying Angles and Determining Unknown Measures</p>

Standard	Correlation
<p>7.G.6 Solve real-world and mathematical problems involving area, volume and surface area of two- and three-dimensional objects composed of triangles, quadrilaterals, polygons, cubes, and right prisms.</p>	<p>TEXTBOOK: Module 1; Module 5 Topic/Lesson: M1T4L4: Percent Increase and Percent Decrease (M1-209 thru M1-222) M5T2L3: Volume of Pyramids (M5-107 thru M5-128) M5T2L4: Surface Area of Pyramids (M5-129 thru M5-142) M5T2L5: Volume and Surface Area of Prisms and Pyramids (M5-143 thru M5-160)</p> <p>SKILLS PRACTICE: Module 5, Constructing and Measuring Topic 2: Three-Dimensional Figures (pp. 127-132)</p> <p>MATHia: Module, Constructing and Measuring Unit: Volume of Pyramids Workspace: Calculating Volume of Pyramids; Using Volume of Pyramids</p>

7.SP STATISTICS AND PROBABILITY

Use sampling to draw conclusions about a population (Standards 7.SP.1). Broaden understanding of statistical problem solving. (Standards 7.SP.2). Summarize and describe distributions representing one population and draw informal comparisons between two populations. (Standards 7.SP.3). Investigate chance processes and develop, use, and evaluate probability models (Standards 7.SP.5–8). NOTE: Standards 7.SP.4- Deleted from Ohio Standards

Standard	Correlation
<p>7.SP.1 Understand that statistics can be used to gain information about a population by examining a sample of the population.</p>	
<p>7.SP.1.a Differentiate between a sample and a population.</p>	<p>TEXTBOOK: Module 4 Topic/Lesson: T3L1: Collecting Random Samples (M4-133 thru M4-150) T3L2: Using Random Samples to Draw Inferences (M4-151 thru M4-168)</p> <p>SKILLS PRACTICE: Module 4, Analyzing Populations and Probabilities Topic 3: Drawing Inferences (pp. 113–116)</p> <p>MATHia: Module, Analyzing Populations and Probabilities Unit: Numerical Data Display Comparisons Workspace: Comparing Populations using Data Displays</p>
<p>7.SP.1.b Understand that conclusions and generalizations about a population are valid only if the sample is representative of that population. Develop an informal understanding of bias.</p>	<p>TEXTBOOK: Module 4 Topic/Lesson: T3L1: Collecting Random Samples (M4-133 thru M4-150) T3L2: Using Random Samples to Draw Inferences (M4-151 thru M4-168)</p> <p>SKILLS PRACTICE: Module 4, Analyzing Populations and Probabilities Topic 3: Drawing Inferences (pp. 113–116)</p> <p>MATHia: Module, Analyzing Populations and Probabilities Unit: Numerical Data Display Comparisons Workspace: Comparing Populations using Data Displays</p>
<p>7.SP.2 Broaden statistical reasoning by using the GAISE model.</p>	
<p>7.SP.2.a Formulate Questions: Recognize and formulate a statistical question as one that anticipates variability and can be answered with quantitative data. For example, “How do the heights of seventh graders compare to the heights of eighth graders?” (GAISE Model, step 1)</p>	<p>TEXTBOOK: Module 4 Topic/Lesson: T3L2: Using Random Samples to Draw Inferences (M4-151 thru M4-168)</p> <p>SKILLS PRACTICE: Module 4, Analyzing Populations and Probabilities Topic 3: Drawing Inferences (pp. 113–116)</p> <p>MATHia: Module, Analyzing Populations and Probabilities Unit: Numerical Data Display Comparisons Workspace: Comparing Populations using Data Displays</p>

Standard	Correlation
<p>7.SP.2.b Collect Data: Design and use a plan to collect appropriate data to answer a statistical question (GAISE Model, step 2).</p>	<p>TEXTBOOK: Module 4 Topic/Lesson: T3L2: Using Random Samples to Draw Inferences (M4-151 thru M4-168)</p> <p>SKILLS PRACTICE: Module 4, Analyzing Populations and Probabilities Topic 3: Drawing Inferences (pp. 113–116)</p> <p>MATHia: Module, Analyzing Populations and Probabilities Unit: Numerical Data Display Comparisons Workspace: Comparing Populations using Data Displays</p>
<p>7.SP.2.c Analyze Data: Select appropriate graphical methods and numerical measures to analyze data by displaying variability within a group, comparing individual to individual, and comparing individual to group (GAISE Model, step 3).</p>	<p>TEXTBOOK: Module 4 Topic/Lesson: T3L2: Using Random Samples to Draw Inferences (M4-151 thru M4-168)</p> <p>SKILLS PRACTICE: Module 4, Analyzing Populations and Probabilities Topic 3: Drawing Inferences (pp. 113–116)</p> <p>MATHia: Module, Analyzing Populations and Probabilities Unit: Numerical Data Display Comparisons Workspace: Comparing Populations using Data Displays</p>
<p>7.SP.2.d Interpret Results: Draw logical conclusions and make generalizations from the data based on the original question (GAISE Model, step 4).</p>	<p>TEXTBOOK: Module 4 Topic/Lesson: T3L2: Using Random Samples to Draw Inferences (M4-151 thru M4-168)</p> <p>SKILLS PRACTICE: Module 4, Analyzing Populations and Probabilities Topic 3: Drawing Inferences (pp. 113–116)</p> <p>MATHia: Module, Analyzing Populations and Probabilities Unit: Numerical Data Display Comparisons Workspace: Comparing Populations using Data Displays</p>
<p>7.SP.3 Describe and analyze distributions.</p>	

Standard	Correlation
<p>7.SP.3.a Summarize quantitative data sets in relation to their context by using mean absolute deviation (MAD), interpreting mean as a balance point.</p>	<p>NOT ADDRESSED IN COURSE 2 COURSE 1 TEXTBOOK: Module 5 Topic/Lesson: T2L3: Mean Absolute Deviation (M5-105 thru M5-116) T2L4: Choosing Appropriate Measures (M5-117 thru M5-130)</p> <p>COURSE 1 SKILLS PRACTICE: Module 5, Describing Variability of Quantities Topic 2: Numerical Summaries of Data (pp. 122–138)</p> <p>COURSE 1 MATHia: Module, Describing Variability of Quantities Unit: Mean Absolute Deviation Workspace: Calculating Mean Absolute Value; Using Mean Absolute Value</p>
<p>7.SP.3.b Informally assess the degree of visual overlap of two numerical data distributions with roughly equal variabilities, measuring the difference between the centers by expressing it as a multiple of a measure of variability. For example, the mean height of players on the basketball team is 10 cm greater than the mean height of players on the soccer team, about twice the variability (mean absolute deviation) on either team; on a dot plot (line plot), the separation between the two distributions of heights is noticeable.</p>	<p>TEXTBOOK: Module 4 Topic/Lesson: T3L3: Comparing Two Populations (M4-169 thru M4-180) T3L4: Using Random Samples from Two Populations to Draw Conclusions (M4-181 thru M4-204)</p> <p>SKILLS PRACTICE: Module 4, Analyzing Populations and Probabilities Topic 3: Drawing Inferences (pp. 113–116)</p> <p>MATHia: Module, Analyze Populations and Probabilities Unit: Numerical Data Display Comparisons Workspace: Comparing Populations using Data Displays; Comparing Characteristics of Data Displays</p>
<p>Deleted from Ohio Standards — moved to high school courses. 7.SP.4 Use measures of center and measures of variability for numerical data from random samples to draw informal comparative inferences about two populations. <i>For example, decide whether the words in a chapter of a seventh-grade science book are generally longer than the words in a chapter of a fourth grade science book.</i></p>	
<p>7.SP.5 Understand that the probability of a chance event is a number between 0 and 1 that expresses the likelihood of the event occurring. Larger numbers indicate greater likelihood. A probability near 0 indicates an unlikely event, a probability around $\frac{1}{2}$ indicates an event that is neither unlikely nor likely, and a probability near 1 indicates a likely event.</p>	<p>TEXTBOOK: Module 4 Topic/Lesson: T1L1: Defining and Representing Probability (M4-7 thru M4-22)</p> <p>SKILLS PRACTICE: Module 4, Analyzing Populations and Probabilities Topic 1: Introduction to Probability (pp. 100–108)</p> <p>MATHia: Module, Analyzing Populations and Probabilities Unit: Introduction to Probability Workspace: Determining Probabilities</p>

Standard	Correlation
<p>7.SP.6 Approximate the probability of a chance event by collecting data on the chance process that produces it and observing its long-run relative frequency, and predict the approximate relative frequency given the probability.</p> <p><i>For example, when rolling a number cube 600 times, predict that a 3 or 6 would be rolled roughly 200 times, but probably not exactly 200 times.</i></p>	<p>TEXTBOOK: Module 4 Topic/Lesson: T1L3: Determining Experimental Probability of Simple Events (M4-33 thru M4-46) T1L4: Simulating Simple Experiments (M4-47 thru M4-72) T2L1: Using Arrays to Organize Outcomes (M4-73 thru M4-88) T2L4: Simulating Probability of Compound Events (M4-113 thru M4-132)</p> <p>SKILLS PRACTICE: Module 4, Analyzing Populations and Probabilities Topic 1: Introduction to Probability (pp. 100–108)</p> <p>MATHia: Module, Analyzing Populations and Probabilities Unit: Introduction to Probability Workspace: Comparing Experimental and Theoretical Probabilities</p>
<p>7.SP.7 Develop a probability model and use it to find probabilities of events. Compare probabilities from a model to observed frequencies; if the agreement is not good, explain possible sources of the discrepancy.</p>	
<p>7.SP.7.a Develop a uniform probability model by assigning equal probability to all outcomes, and use the model to determine probabilities of events.</p> <p><i>For example, if a student is selected at random from a class, find the probability that Jane will be selected and the probability that a girl will be selected.</i></p>	<p>TEXTBOOK: Module 4 Topic/Lesson: T1L2: Probability Models (M4-23 thru M4-32) T1L4: Simulating Simple Experiments (M4-47 thru M4-72) T2L2: Using Tree Diagrams (M4-89 thru M4-100)</p> <p>SKILLS PRACTICE: Module 4, Analyzing Populations and Probabilities Topic 1: Introduction to Probability (pp. 100–108) Topic 2: Compound Probability (pp. 109–112)</p> <p>MATHia: Module, Analyzing Populations and Probabilities Unit: Introduction to Probability Workspace: Determining Probabilities</p>
<p>7.SP.7.b Develop a probability model (which may not be uniform) by observing frequencies in data generated from a chance process.</p> <p><i>For example, find the approximate probability that a spinning penny will land heads up or that a tossed paper cup will land open-end down. Do the outcomes for the spinning penny appear to be equally likely based on the observed frequencies?</i></p>	<p>TEXTBOOK: Module 4 Topic/Lesson: T1L2: Probability Models (M4-23 thru M4-32) T1L3: Determining Experimental Probability of Simple Events (M4-33 thru M4-46) T2L1: Using Arrays to Organize Outcomes (M4-73 thru M4-88) T2L2: Using Tree Diagrams (M4-89 thru M4-100) T2L3: Determining Compound Probability (M4-101 thru M4-112)</p> <p>SKILLS PRACTICE: Module 4, Analyzing Populations and Probabilities Topic 1: Introduction to Probability (pp. 100–108) Topic 2: Compound Probability (pp. 109–112)</p> <p>MATHia: Module, Analyzing Populations and Probabilities Unit: Introduction to Probability Workspace: Comparing Experimental and Theoretical Probabilities</p>

Standard	Correlation
<p>7.SP.8 Find probabilities of compound events using organized lists, tables, tree diagrams, and simulation.</p>	
<p>7.SP.8.a Understand that, just as with simple events, the probability of a compound event is the fraction of outcomes in the sample space for which the compound event occurs.</p>	<p>TEXTBOOK: Module 4 Topic/Lesson: T2L1: Using Arrays to Organize Outcomes (M4-73 thru M4-88) T2L3: Determining Compound Probability (M4-101 thru M4-112)</p> <p>SKILLS PRACTICE: Module 4, Analyzing Populations and Probabilities Topic 2: Compound Probability (pp. 109–112)</p> <p>MATHia: Module, Analyzing Populations and Probabilities Unit: Introduction to Probability Workspace: Calculating Compound Probabilities</p>
<p>7.SP.8.b Represent sample spaces for compound events using methods such as organized lists, tables and tree diagrams. For an event described in everyday language (e.g., “rolling double sixes”), identify the outcomes in the sample space which compose the event.</p>	<p>TEXTBOOK: Module 4 Topic/Lesson: T2L1: Using Arrays to Organize Outcomes (M4-73 thru M4-88) T2L2: Using Tree Diagrams (M4-89 thru M4-100) T2L3: Determining Compound Probability (M4-101 thru M4-112)</p> <p>MATHia: Module, Analyzing Populations and Probabilities Unit: Introduction to Probability Workspace: Calculating Compound Probabilities</p>
<p>7.SP.8.c Design and use a simulation to generate frequencies for compound events.</p> <p><i>For example, use random digits as a simulation tool to approximate the answer to the question: If 40% of donors have type A blood, what is the probability that it will take at least 4 donors to find one with type A blood?</i></p>	<p>TEXTBOOK: Module 4 Topic/Lesson: T2L4: Simulating Probability of Compound Events (M4-113 thru M4-132)</p> <p>MATHia: Module, Analyzing Populations and Probabilities Unit: Introduction to Probability Workspace: Calculating Compound Probabilities</p>