

# Pacing Guide

- Build Conceptual Understanding
- Connect Concepts and Skills
- Apply and Practice

| Lesson   | Mathematics Standards, Grade 7   | Pacing |
|--|--|--------|
| <b>Unit 1 PROPORTIONAL RELATIONSHIPS</b>                           |  |        |
| <b>Module 1: Identify and Represent Proportional Relationships</b> |  |        |
| Lesson 1.1 Explore Relationships                                   | <ul style="list-style-type: none"> <li>Recognize and represent proportional relationships between quantities.</li> <li>Identify the constant of proportionality (unit rate) in tables, graphs, equations, diagrams, and verbal descriptions of proportional relationships.</li> </ul>  | 1 day  |
| Lesson 1.2 Recognize Proportional Relationships in Tables          | <ul style="list-style-type: none"> <li>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.</li> <li>Identify the constant of proportionality (unit rate) in tables, graphs, equations, diagrams, and verbal descriptions of proportional relationships.</li> <li>Represent proportional relationships by equations.</li> </ul>  | 2 days |
| Lesson 1.3 Compute Unit Rates Involving Fractions                  | <ul style="list-style-type: none"> <li>Compute unit rates associated with ratios of fractions, including ratios of lengths, areas and other quantities measured in like or different units.</li> </ul>   | 2 days |
| Lesson 1.4 Recognize Proportional Relationships in Graphs          | <ul style="list-style-type: none"> <li>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.</li> <li>Identify the constant of proportionality (unit rate) in tables, graphs, equations, diagrams, and verbal descriptions of proportional relationships.</li> <li>Explain what a point <math>(x, y)</math> on the graph of a proportional relationship means in terms of the situation, with special attention to the points <math>(0, 0)</math> and <math>(1, r)</math> where <math>r</math> is the unit rate.</li> </ul> | 2 days |
| Lesson 1.5 Use Proportional Relationships to Solve Rate Problems   | <ul style="list-style-type: none"> <li>Identify the constant of proportionality (unit rate) in tables, graphs, equations, diagrams, and verbal descriptions of proportional relationships.</li> <li>Use proportional relationships to solve multistep ratio and percent problems.</li> </ul>   | 2 days |
| Lesson 1.6 Practice Proportional Reasoning with Scale Drawings     | <ul style="list-style-type: none"> <li>Solve problems involving scale drawings of geometric figures, including computing actual lengths and areas from a scale drawing and reproducing a scale drawing at a different scale.</li> <li>Compute unit rates associated with ratios of fractions, including ratios of lengths, areas and other quantities measured in like or different units.</li> <li>Use proportional relationships to solve multistep ratio and percent problems.</li> </ul>   | 2 days |

- Major
- Supporting
- Additional

In addition to the core instructional pacing below, HMH recommends the following:

- 3 days per year for the HMH Into Math Growth Measure powered by Math Inventory
  - 3 days per module for the Module Opener, Are You Ready?, Module Review, and Module Test
  - 2 days per unit for the Performance Task
- Using these recommendations, the total pacing for Grade 7 is 160 days.

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| <b>Module 2: Proportional Reasoning with Percents</b>                    |  |        |
| Lesson 2.1 Percent Change  | ■ Use proportional relationships to solve multistep ratio and percent problems.  | 2 days |
| Lesson 2.2 Markups and Discounts   | ■ Use proportional relationships to solve multistep ratio and percent problems.<br>■ Understand that rewriting an expression in different forms in a problem context can shed light on the problem and how the quantities in it are related.   | 2 days |
| Lesson 2.3 Taxes and Gratuities  | ■ Use proportional relationships to solve multistep ratio and percent problems.  | 2 days |
| Lesson 2.4 Commissions and Fees  | ■ Use proportional relationships to solve multistep ratio and percent problems.  | 2 days |
| Lesson 2.5 Simple Interest   | ■ Use proportional relationships to solve multistep ratio and percent problems.  | 2 days |
| <b>Unit 2 RATIONAL NUMBER OPERATIONS</b>                                 |  |        |
| <b>Module 3: Understand Addition and Subtraction of Rational Numbers</b> |  |        |
| Lesson 3.1 Add or Subtract a Positive Integer on a Number Line           | ■ 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.<br>■ 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.  | 2 days |
| Lesson 3.2 Add or Subtract a Negative Integer on a Number Line           | ■ 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.<br>■ 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.  | 2 days |
| Lesson 3.3 Use a Number Line to Add and Subtract Rational Numbers        | ■ 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.<br>■ Describe situations in which opposite quantities combine to make 0.<br>■ 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. | 2 days |

"One day" is equal to one instructional period in a traditional schedule and would need to be adjusted to account for longer class periods in a block schedule.

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| Lesson  | Mathematics Standards, Grade 7  | Pacing |
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| <b>Module 4: Add and Subtract Rational Numbers</b>                          |   |        |
| Lesson 4.1 Compute Sums of Integers   | <ul style="list-style-type: none"> <li>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.</li> <li>Understand <math>p + q</math> as the number located a distance <math> q </math> from <math>p</math>, in the positive or negative direction depending on whether <math>q</math> 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.</li> </ul>                            | 2 days |
| Lesson 4.2 Compute Differences of Integers                                  | <ul style="list-style-type: none"> <li>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.</li> <li>Understand subtraction of rational numbers as adding the additive inverse, <math>p - q = p + (-q)</math>. 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.</li> </ul>  | 2 days |
| Lesson 4.3 Compute Sums and Differences of Rational Numbers                 | <ul style="list-style-type: none"> <li>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.</li> <li>Understand subtraction of rational numbers as adding the additive inverse, <math>p - q = p + (-q)</math>. 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.</li> <li>Solve real-world and mathematical problems involving the four operations with rational numbers.</li> </ul> | 2 days |
| Lesson 4.4 Apply Properties to Multi-step Addition and Subtraction Problems | <ul style="list-style-type: none"> <li>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.</li> <li>Apply properties of operations as strategies to add and subtract rational numbers.</li> </ul>  | 2 days |

| Lesson  | Mathematics Standards, Grade 7  | Pacing |
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| <b>Module 5: Multiply and Divide Rational Numbers</b>   |   |        |
|  Lesson 5.1 Understand Multiplication and Division of Rational Numbers | <ul style="list-style-type: none"> <li>■ 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 <math>(-1)(-1) = 1</math> and the rules for multiplying signed numbers. Interpret products of rational numbers by describing real-world contexts.</li> <li>■ Understand that integers can be divided, provided that the divisor is not zero, and every quotient of integers (with non-zero divisor) is a rational number. If <math>p</math> and <math>q</math> are integers, then <math>-\left(\frac{p}{q}\right) = \frac{(-p)}{q} = \frac{p}{(-q)}</math>. Interpret quotients of rational numbers by describing real-world contexts.</li> <li>■ Apply properties of operations as strategies to multiply and divide rational numbers.</li> </ul>                                  | 2 days |
|  Lesson 5.2 Multiply Rational Numbers                                  | <ul style="list-style-type: none"> <li>■ 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 <math>(-1)(-1) = 1</math> and the rules for multiplying signed numbers. Interpret products of rational numbers by describing real-world contexts.</li> <li>■ Apply properties of operations as strategies to multiply and divide rational numbers.</li> <li>■ Solve real-world and mathematical problems involving the four operations with rational numbers.</li> </ul>  | 1 day  |
|  Lesson 5.3 Write Fractions as Decimals and Divide Integers          | <ul style="list-style-type: none"> <li>■ Understand that integers can be divided, provided that the divisor is not zero, and every quotient of integers (with non-zero divisor) is a rational number. If <math>p</math> and <math>q</math> are integers, then <math>-\left(\frac{p}{q}\right) = \frac{(-p)}{q} = \frac{p}{(-q)}</math>. Interpret quotients of rational numbers by describing real-world contexts.</li> <li>■ 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.</li> <li>■ Solve real-world and mathematical problems involving the four operations with rational numbers.</li> </ul>   | 2 days |
|  Lesson 5.4 Multiply and Divide Rational Numbers in Context          | <ul style="list-style-type: none"> <li>■ 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 <math>(-1)(-1) = 1</math> and the rules for multiplying signed numbers. Interpret products of rational numbers by describing real-world contexts.</li> <li>■ Solve real-world and mathematical problems involving the four operations with rational numbers.</li> <li>■ 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.</li> </ul> | 1 day  |

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| <b>Module 6: Solve Multi-step Problems Using Rational Numbers</b>                  |  |        |
| Lesson 6.1 Apply Properties and Strategies to Operate with Rational Numbers        | <ul style="list-style-type: none"> <li>Apply properties of operations as strategies to multiply and divide rational numbers.</li> <li>Solve real-world and mathematical problems involving the four operations with rational numbers.</li> <li>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.</li> </ul> | 1 day  |
| Lesson 6.2 Estimate to Check Reasonableness  | <ul style="list-style-type: none"> <li>Solve real-world and mathematical problems involving the four operations with rational numbers.</li> <li>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.</li> </ul>  | 1 day  |
| Lesson 6.3 Solve Multi-step Problems with Rational Numbers in Context              | <ul style="list-style-type: none"> <li>Solve real-world and mathematical problems involving the four operations with rational numbers.</li> <li>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.</li> <li>Use proportional relationships to solve multistep ratio and percent problems.</li> </ul>         | 2 days |
| <b>Unit 3 MODEL WITH EXPRESSIONS, EQUATIONS, AND INEQUALITIES</b>                  |  |        |
| <b>Module 7: Solve Problems Using Expressions and Equations</b>                    |  |        |
| Lesson 7.1 Write Linear Expressions in Different Forms for Situations              | <ul style="list-style-type: none"> <li>Understand that rewriting an expression in different forms in a problem context can shed light on the problem and how the quantities in it are related.</li> </ul>  | 1 day  |
| Lesson 7.2 Add, Subtract, and Factor Linear Expressions with Rational Coefficients | <ul style="list-style-type: none"> <li>Apply properties of operations as strategies to add, subtract, factor, and expand linear expressions with rational coefficients.</li> <li>Understand that rewriting an expression in different forms in a problem context can shed light on the problem and how the quantities in it are related.</li> </ul>  | 2 days |

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| Lesson 7.3 Write Two-step Equations for Situations                        | ■ 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.   | 1 day  |
| Lesson 7.4 Apply Two-step Equations to Solve Real-World Problems          | ■ 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.<br><br>■ 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. | 2 days |
| Lesson 7.5 Apply Two-Step Equations to Find Angle Measures                | ○ Use facts about supplementary, complementary, vertical, and adjacent angles in a multi-step problem to write and solve simple equations for an unknown angle in a figure.<br><br>■ 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.  | 2 days |
| <b>Module 8: Solve Problems Using Inequalities</b>                        |   |        |
| Lesson 8.1 Understand and Apply Properties to Solve One-Step Inequalities | ■ 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.  | 2 days |
| Lesson 8.2 Write Two-Step Inequalities for Situations                     | ■ 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.   | 2 days |
| Lesson 8.3 Apply Two-Step Inequalities to Solve Problems                  | ■ 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.  | 2 days |

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| <b>Unit 4 GEOMETRY</b>   |  |        |
| <b>Module 9: Draw and Analyze Two-Dimensional Figures</b>        |  |        |
| Lesson 9.1 Draw Circles and Other Figures                        | <ul style="list-style-type: none"> <li>Draw (freehand, with ruler and protractor, and with technology) geometric shapes with given conditions. 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.</li> </ul>  | 2 days |
| Lesson 9.2 Draw and Construct Triangles Given Side Lengths       | <ul style="list-style-type: none"> <li>Draw (freehand, with ruler and protractor, and with technology) geometric shapes with given conditions. 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.</li> </ul>  | 2 days |
| Lesson 9.3 Draw and Construct Triangles Given Angle Measures     | <ul style="list-style-type: none"> <li>Draw (freehand, with ruler and protractor, and with technology) geometric shapes with given conditions. 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.</li> </ul>  | 2 days |
| Lesson 9.4 Draw and Analyze Shapes to Solve Problems             | <ul style="list-style-type: none"> <li>Draw (freehand, with ruler and protractor, and with technology) geometric shapes with given conditions. 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.</li> </ul>  | 1 day  |
| <b>Module 10: Analyze Figures to Find Circumference and Area</b> |  |        |
| Lesson 10.1 Derive and Apply Formulas for Circumference          | <ul style="list-style-type: none"> <li>Know the formulas for the area and circumference of a circle and use them to solve problems; give an informal derivation of the relationship between the circumference and area of a circle.</li> <li>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.</li> </ul> | 1 day  |
| Lesson 10.2 Derive and Apply a Formula for the Area of a Circle  | <ul style="list-style-type: none"> <li>Know the formulas for the area and circumference of a circle and use them to solve problems; give an informal derivation of the relationship between the circumference and area of a circle.</li> <li>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.</li> </ul> | 2 days |



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| Lesson 10.3 Describe and Analyze Cross Sections of Circular Solids                | <ul style="list-style-type: none"> <li>Describe the two-dimensional figures that result from slicing three-dimensional figures, as in plane sections of right rectangular prisms and right rectangular pyramids.</li> <li>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.</li> </ul>                          | 2 days |
| Lesson 10.4 Areas of Composite Figures  | <ul style="list-style-type: none"> <li>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.</li> <li>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.</li> </ul> | 1 day  |
| <b>Module 11: Analyze Surface Area and Volume</b>                                 |  |        |
| Lesson 11.1 Describe and Analyze Cross Sections of Prisms and Pyramids            | <ul style="list-style-type: none"> <li>Describe the two-dimensional figures that result from slicing three-dimensional figures, as in plane sections of right rectangular prisms and right rectangular pyramids.</li> </ul>  | 1 day  |
| Lesson 11.2 Derive and Apply Formulas for Surface Areas of Cubes and Right Prisms | <ul style="list-style-type: none"> <li>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.</li> <li>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.</li> </ul> | 1 day  |
| Lesson 11.3 Derive and Apply a Formula for the Volume of a Right Prism            | <ul style="list-style-type: none"> <li>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.</li> <li>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.</li> </ul> | 1 day  |



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| <b>Module 11: Analyze Surface Area and Volume</b>                             |  |        |
| Lesson 11.4 Solve Multi-step Problems with Surface Area and Volume            | <ul style="list-style-type: none"> <li>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.</li> <li>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.</li> </ul> | 2 days |
| <b>Unit 5 SAMPLING AND DATA ANALYSIS</b>                                      |  |        |
| <b>Module 12: Proportional Reasoning with Samples</b>                         |  |        |
| Lesson 12.1 Understand Representative Samples                                 | <ul style="list-style-type: none"> <li>Understand that statistics can be used to gain information about a population by examining a sample of the population; generalizations about a population from a sample are valid only if the sample is representative of that population. Understand that random sampling tends to produce representative samples and support valid inferences.</li> </ul>   | 1 day  |
| Lesson 12.2 Make Inferences from a Random Sample                              | <ul style="list-style-type: none"> <li>Use data from a random sample to draw inferences about a population with an unknown characteristic of interest. Generate multiple samples (or simulated samples) of the same size to gauge the variation in estimates or predictions.</li> </ul>  | 2 days |
| Lesson 12.3 Make Inferences from Repeated Random Samples                      | <ul style="list-style-type: none"> <li>Use data from a random sample to draw inferences about a population with an unknown characteristic of interest. Generate multiple samples (or simulated samples) of the same size to gauge the variation in estimates or predictions.</li> </ul>  | 1 day  |
| <b>Module 13: Use Statistics and Graphs to Compare Data</b>                   |  |        |
| Lesson 13.1 Compare Center and Spread of Data Displayed in Dot Plots          | <ul style="list-style-type: none"> <li>Informally assess the degree of visual overlap of two numerical data distributions with similar variabilities, measuring the difference between the centers by expressing it as a multiple of a measure of variability.</li> <li>Use measures of center and measures of variability for numerical data from random samples to draw informal comparative inferences about two populations.</li> </ul>  | 1 day  |
| Lesson 13.2 Compare Center and Spread of Data Displayed in Box Plots          | <ul style="list-style-type: none"> <li>Informally assess the degree of visual overlap of two numerical data distributions with similar variabilities, measuring the difference between the centers by expressing it as a multiple of a measure of variability.</li> <li>Use measures of center and measures of variability for numerical data from random samples to draw informal comparative inferences about two populations.</li> </ul>  | 1 day  |
| Lesson 13.3 Compare Means Using Mean Absolute Deviation and Repeated Sampling | <ul style="list-style-type: none"> <li>Informally assess the degree of visual overlap of two numerical data distributions with similar variabilities, measuring the difference between the centers by expressing it as a multiple of a measure of variability.</li> <li>Use measures of center and measures of variability for numerical data from random samples to draw informal comparative inferences about two populations.</li> </ul>  | 2 days |

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| <b>Unit 6 PROBABILITY</b>   |   |        |
| <b>Module 14: Understand and Apply Experimental Probability</b>                         |   |        |
| Lesson 14.1 Understand Probability of an Event  | <ul style="list-style-type: none"> <li>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 <math>\frac{1}{2}</math> indicates an event that is neither unlikely nor likely, and a probability near 1 indicates a likely event.</li> </ul>  | 1 day  |
| Lesson 14.2 Find Experimental Probability of Simple Events                              | <ul style="list-style-type: none"> <li>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.</li> <li>Develop a probability model (which may not be uniform) by observing frequencies in data generated from a chance process.</li> <li>Use proportional relationships to solve multistep ratio and percent problems.</li> </ul>   | 2 days |
| Lesson 14.3 Find Experimental Probability of Compound Events                            | <ul style="list-style-type: none"> <li>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.</li> <li>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.</li> <li>Use proportional relationships to solve multistep ratio and percent problems.</li> </ul>   | 2 days |
| Lesson 14.4 Use Experimental Probability and Proportional Reasoning to Make Predictions | <ul style="list-style-type: none"> <li>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.</li> <li>Use proportional relationships to solve multistep ratio and percent problems.</li> <li>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.</li> </ul> | 2 days |

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| <b>Module 15: Understand and Apply Theoretical Probability</b>                         |  |        |
| Lesson 15.1 Find Theoretical Probability of Simple Events                              | <ul style="list-style-type: none"> <li>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.</li> <li>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.</li> <li>Develop a uniform probability model by assigning equal probability to all outcomes, and use the model to determine probabilities of events.</li> <li>Use proportional relationships to solve multistep ratio and percent problems.</li> </ul>   | 2 days |
| Lesson 15.2 Find Theoretical Probability of Compound Events                            | <ul style="list-style-type: none"> <li>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.</li> <li>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.</li> <li>Use proportional relationships to solve multistep ratio and percent problems.</li> </ul>  | 2 days |
| Lesson 15.3 Use Theoretical Probability and Proportional Reasoning to Make Predictions | <ul style="list-style-type: none"> <li>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.</li> <li>Develop a uniform probability model by assigning equal probability to all outcomes, and use the model to determine probabilities of events.</li> <li>Use proportional relationships to solve multistep ratio and percent problems.</li> <li>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.</li> </ul> | 2 days |
| Lesson 15.4 Conduct Simulations  | <ul style="list-style-type: none"> <li>Design and use a simulation to generate frequencies for compound events.</li> <li>Use proportional relationships to solve multistep ratio and percent problems.</li> </ul>  | 2 days |