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An Alignment of the

Common Core State Standards for Mathematics Grade 7

to the Lessons of

enVision® Mathematics

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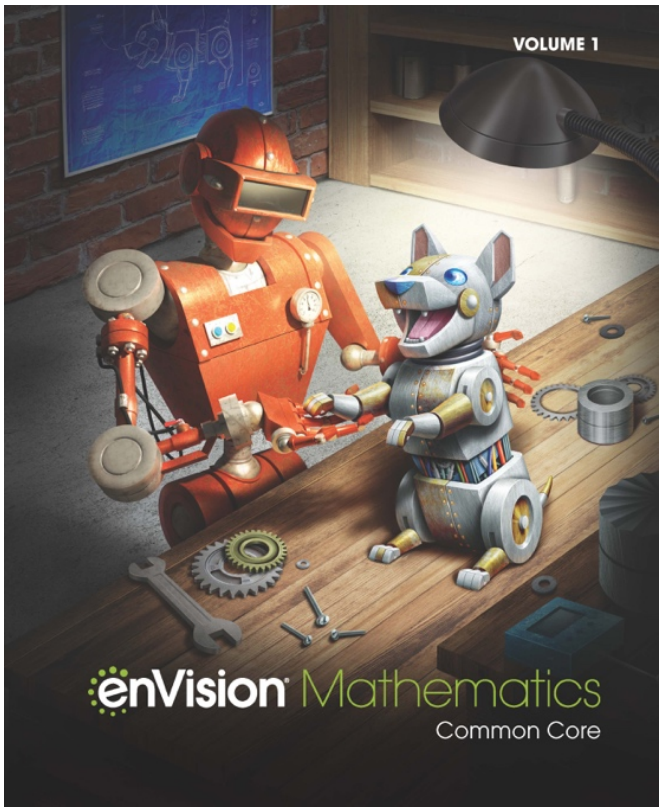

Prepared by Savvas Learning Company, formerly Pearson K12 Learning

An Alignment of the Common Core State Standards for Mathematics, Grade 7
To the Lessons of enVision Mathematics, ©2021

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enVision Mathematics, ©2021 Grade 7 Lessons	Common Core State Standards for Mathematics Grade 7
Topic 1 Rational Number Operations	
1-1 Relate Integers and Their Opposites	**7.NS.A.1a** Describe situations in which opposite quantities combine to make 0. **MP.1:** Make sense of problems and persevere in solving them. **MP.2:** Reason abstractly and quantitatively. **MP.3:** Construct viable arguments and critique the reasoning of others. **MP.4:** Model with mathematics.
1-2 Understand Rational Numbers	**7.NS.A.1d** Apply properties of operations as strategies to add and subtract rational numbers. **MP.1:** Make sense of problems and persevere in solving them. **MP.2:** Reason abstractly and quantitatively. **MP.6:** Attend to precision. **MP.7:** Look for and make use of structure.
1-3 Add Integers	**7.NS.A.1a** 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. **7.NS.A.1d** Apply properties of operations as strategies to add and subtract rational numbers. **MP.2:** Reason abstractly and quantitatively. **MP.3:** Construct viable arguments and critique the reasoning of others. **MP.4:** Model with mathematics. **MP.5:** Use appropriate tools strategically. **MP.7:** Look for and make use of structure.

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1-4 Subtract Integers	**7.NS.A.1c** 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. **7.NS.A.1d** Apply properties of operations as strategies to add and subtract rational numbers. **MP.1:** Make sense of problems and persevere in solving them. **MP.2:** Reason abstractly and quantitatively. **MP.3:** Construct viable arguments and critique the reasoning of others. **MP.4:** Model with mathematics. **MP.7:** Look for and make use of structure.
1-5 Add and Subtract Rational Numbers	**7.NS.A.1a** 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. **7.NS.A.1c** 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. **7.NS.A.1d** Apply properties of operations as strategies to add and subtract rational numbers. **MP.1:** Make sense of problems and persevere in solving them. **MP.2:** Reason abstractly and quantitatively. **MP.3:** Construct viable arguments and critique the reasoning of others. **MP.4:** Model with mathematics. **MP.7:** Look for and make use of structure. **MP.8:** Look for and express regularity in repeated reasoning.

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1-6 Multiply Integers	**7.NS.A.2a** 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. **7.NS.A.2c** Apply properties of operations as strategies to multiply and divide rational numbers. **MP.1:** Make sense of problems and persevere in solving them. **MP.2:** Reason abstractly and quantitatively. **MP.3:** Construct viable arguments and critique the reasoning of others. **MP.4:** Model with mathematics. **MP.6:** Attend to precision. **MP.7:** Look for and make use of structure. **MP.8:** Look for and express regularity in repeated reasoning.
1-7 Multiply Rational Numbers	**7.NS.A.2a** 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. **7.NS.A.2c** Apply properties of operations as strategies to multiply and divide rational numbers. **MP.4:** Model with mathematics. **MP.6:** Attend to precision. **MP.8:** Look for and express regularity in repeated reasoning.

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1-8 Divide Integers	**7.NS.A.2a** 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 p and q are integers, then $-(p/q) = (-p)/q = p/(-q)$. Interpret quotients of rational numbers by describing real world contexts. **7.NS.A.2c** Apply properties of operations as strategies to multiply and divide rational numbers. **MP.2:** Reason abstractly and quantitatively. **MP.4:** Model with mathematics. **MP.7:** Look for and make use of structure. **MP.8:** Look for and express regularity in repeated reasoning.
1-9 Divide Rational Numbers	**7.NS.A.2a** 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 p and q are integers, then $-(p/q) = (-p)/q = p/(-q)$. Interpret quotients of rational numbers by describing real world contexts. **7.NS.A.2c** Apply properties of operations as strategies to multiply and divide rational numbers. **MP.1:** Make sense of problems and persevere in solving them. **MP.2:** Reason abstractly and quantitatively. **MP.3:** Construct viable arguments and critique the reasoning of others. **MP.7:** Look for and make use of structure. **MP.8:** Look for and express regularity in repeated reasoning.

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1-10 Solve Problems Involving Rational Numbers	**7.NS.A.3** Solve real-world and mathematical problems involving the four operations with rational numbers. **7.EE.B.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. **MP.1:** Make sense of problems and persevere in solving them. **MP.2:** Reason abstractly and quantitatively. **MP.3:** Construct viable arguments and critique the reasoning of others. **MP.4:** Model with mathematics. **MP.7:** Look for and make use of structure.
3-Act Mathematical Modeling: Win Some, Lose Some	**7.NS.A.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. **7.NS.A.3** Solve real-world and mathematical problems involving the four operations with rational numbers. **MP.1:** Make sense of problems and persevere in solving them. **MP.2:** Reason abstractly and quantitatively. **MP.3:** Construct viable arguments and critique the reasoning of others. **MP.4:** Model with mathematics. **MP.5:** Use appropriate tools strategically. **MP.7:** Look for and make use of structure. **MP.8:** Look for and express regularity in repeated reasoning.

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Topic 2 Analyze and Use Proportional Relationships	
2-1 Connect Ratios, Rates, and Unit Rates	**7.RP.A.1** Compute unit rates associated with ratios of fractions, including ratios of lengths, areas and other quantities measured in like or different units. **7.RP.A.3** Use proportional relationships to solve multistep ratio and percent problems. **MP.1:** Make sense of problems and persevere in solving them. **MP.3:** Construct viable arguments and critique the reasoning of others. **MP.6:** Attend to precision. **MP.7:** Look for and make use of structure. **MP.8:** Look for and express regularity in repeated reasoning.
2-2 Identify Unit Rates from Ratios of Fractions	**7.RP.A.1** Compute unit rates associated with ratios of fractions, including ratios of lengths, areas and other quantities measured in like or different units. **7.RP.A.3** Use proportional relationships to solve multistep ratio and percent problems. **MP.2:** Reason abstractly and quantitatively. **MP.3:** Construct viable arguments and critique the reasoning of others. **MP.6:** Attend to precision. **MP.7:** Look for and make use of structure.
2-3 Understand Proportional Relationships: Equivalent Ratios	7.RP.A.2a 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. **MP.1:** Make sense of problems and persevere in solving them. **MP.2:** Reason abstractly and quantitatively. **MP.3:** Construct viable arguments and critique the reasoning of others. **MP.7:** Look for and make use of structure. **MP.8:** Look for and express regularity in repeated reasoning.

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2-4 Describe Proportional Relationships: Constant of Proportionality	**7.RP.A.2a** Identify the constant of proportionality (unit rate) in tables, graphs, equations, diagrams, and verbal descriptions of proportional relationships. **7.RP.A.2c** Represent proportional relationships by equations. **MP.2:** Reason abstractly and quantitatively. **MP.3:** Construct viable arguments and critique the reasoning of others. **MP.4:** Model with mathematics. **MP.6:** Attend to precision. **MP.8:** Look for and express regularity in repeated reasoning.
3-Act Mathematical Modeling: Mixing It Up	**7.RP.A.1** Compute unit rates associated with ratios of fractions, including ratios of lengths, areas and other quantities measured in like or different units. **7.RP.A.2a** 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. **MP.1:** Make sense of problems and persevere in solving them. **MP.2:** Reason abstractly and quantitatively. **MP.3:** Construct viable arguments and critique the reasoning of others. **MP.4:** Model with mathematics. **MP.5:** Use appropriate tools strategically. **MP.7:** Look for and make use of structure. **MP.8:** Look for and express regularity in repeated reasoning.

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2-5 Graph Proportional Relationships	**7.RP.A.2a** 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. **7.RP.A.2a** Identify the constant of proportionality (unit rate) in tables, graphs, equations, diagrams, and verbal descriptions of proportional relationships. **7.RP.A.2d** 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. **MP.2:** Reason abstractly and quantitatively. **MP.3:** Construct viable arguments and critique the reasoning of others. **MP.4:** Model with mathematics. **MP.7:** Look for and make use of structure.
2-6 Apply Proportional Reasoning to Solve Problems	**7.RP.A.2** Recognize and represent proportional relationships between quantities. **7.RP.A.3** Use proportional relationships to solve multistep ratio and percent problems. **MP.1:** Make sense of problems and persevere in solving them. **MP.2:** Reason abstractly and quantitatively. **MP.5:** Use appropriate tools strategically. **MP.7:** Look for and make use of structure.
Topic 3 Analyze and Solve Percent Problems	
3-1 Analyze Percents of Numbers	**7.RP.A.3** Use proportional relationships to solve multistep ratio and percent problems. **MP.1:** Make sense of problems and persevere in solving them. **MP.2:** Reason abstractly and quantitatively. **MP.3:** Construct viable arguments and critique the reasoning of others. **MP.7:** Look for and make use of structure.

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3-2 Connect Percent and Proportion	**7.RP.A.2c** Represent proportional relationships by equations. **7.RP.A.3** Use proportional relationships to solve multistep ratio and percent problems. **MP.1:** Make sense of problems and persevere in solving them. **MP.2:** Reason abstractly and quantitatively. **MP.3:** Construct viable arguments and critique the reasoning of others. **MP.7:** Look for and make use of structure.
3-3 Represent and Use the Percent Equation	**7.RP.A.2c** Represent proportional relationships by equations. **7.RP.A.3** Use proportional relationships to solve multistep ratio and percent problems. **MP.1:** Make sense of problems and persevere in solving them. **MP.2:** Reason abstractly and quantitatively. **MP.3:** Construct viable arguments and critique the reasoning of others. **MP.4:** Model with mathematics. **MP.6:** Attend to precision. **MP.7:** Look for and make use of structure.
3-4 Solve Percent Change and Percent Error Problems	**7.RP.A.3** Use proportional relationships to solve multistep ratio and percent problems. **MP.1:** Make sense of problems and persevere in solving them. **MP.3:** Construct viable arguments and critique the reasoning of others. **MP.4:** Model with mathematics. **MP.6:** Attend to precision. **MP.7:** Look for and make use of structure.

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3-Act Mathematical Modeling	**7.RP.A.3** Use proportional relationships to solve multistep ratio and percent problems. **MP.1:** Make sense of problems and persevere in solving them. **MP.2:** Reason abstractly and quantitatively. **MP.3:** Construct viable arguments and critique the reasoning of others. **MP.4:** Model with mathematics. **MP.5:** Use appropriate tools strategically. **MP.6:** Attend to precision. **MP.7:** Look for and make use of structure. **MP.8:** Look for and express regularity in repeated reasoning.
3-5 Solve Markup and Markdown Problems	**7.RP.A.3** Use proportional relationships to solve multistep ratio and percent problems. **MP.1:** Make sense of problems and persevere in solving them. **MP.2:** Reason abstractly and quantitatively. **MP.4:** Model with mathematics. **MP.8:** Look for and express regularity in repeated reasoning.
3-6 Solve Simple Interest Problems	**7.RP.A.3** Use proportional relationships to solve multistep ratio and percent problems. **MP.1:** Make sense of problems and persevere in solving them. **MP.2:** Reason abstractly and quantitatively. **MP.3:** Construct viable arguments and critique the reasoning of others.

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Topic 4 Generate Equivalent Expressions	
4-1 Write and Evaluate Algebraic Expressions	**7.EE.B.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. **7.EE.B.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. **MP.2:** Reason abstractly and quantitatively. **MP.4:** Model with mathematics. **MP.6:** Attend to precision. **MP.7:** Look for and make use of structure.
4-2 Generate Equivalent Expressions	**7.EE.A.1** Apply properties of operations as strategies to add, subtract, factor, and expand linear expressions with rational coefficients. **MP.1:** Make sense of problems and persevere in solving them. **MP.2:** Reason abstractly and quantitatively. **MP.3:** Construct viable arguments and critique the reasoning of others.
4-3 Simplify Expressions	**7.EE.A.1** Apply properties of operations as strategies to add, subtract, factor, and expand linear expressions with rational coefficients. **MP.1:** Make sense of problems and persevere in solving them. **MP.2:** Reason abstractly and quantitatively. **MP.3:** Construct viable arguments and critique the reasoning of others. **MP.7:** Look for and make use of structure.

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4-4 Expand Expressions	**7.EE.A.1** Apply properties of operations as strategies to add, subtract, factor, and expand linear expressions with rational coefficients. **7.EE.A.2** 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. **MP.1:** Make sense of problems and persevere in solving them. **MP.4:** Model with mathematics. **MP.7:** Look for and make use of structure.
4-5 Factor Expressions	**7.EE.A.1** Apply properties of operations as strategies to add, subtract, factor, and expand linear expressions with rational coefficients. **7.EE.A.2** 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. **MP.1:** Make sense of problems and persevere in solving them. **MP.2:** Reason abstractly and quantitatively. **MP.3:** Construct viable arguments and critique the reasoning of others. **MP.8:** Look for and express regularity in repeated reasoning.
3-Act Mathematical Modeling: I've Got You Covered	**7.EE.A.1** Apply properties of operations as strategies to add, subtract, factor, and expand linear expressions with rational coefficients. **7.EE.A.2** 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. **MP.1:** Make sense of problems and persevere in solving them. **MP.2:** Reason abstractly and quantitatively. **MP.3:** Construct viable arguments and critique the reasoning of others. **MP.4:** Model with mathematics. **MP.5:** Use appropriate tools strategically. **MP.7:** Look for and make use of structure. **MP.8:** Look for and express regularity in repeated reasoning.

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4-6 Add Expressions	**7.EE.A.1** Apply properties of operations as strategies to add, subtract, factor, and expand linear expressions with rational coefficients. **7.EE.A.2** 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. **MP.1:** Make sense of problems and persevere in solving them. **MP.2:** Reason abstractly and quantitatively. **MP.4:** Model with mathematics. **MP.6:** Attend to precision. **MP.7:** Look for and make use of structure.
4-7 Subtract Expressions	**7.EE.A.1** Apply properties of operations as strategies to add, subtract, factor, and expand linear expressions with rational coefficients. **7.EE.A.2** 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. **MP.1:** Make sense of problems and persevere in solving them. **MP.3:** Construct viable arguments and critique the reasoning of others. **MP.4:** Model with mathematics. **MP.7:** Look for and make use of structure.
4-8 Analyze Equivalent Expressions	**7.EE.A.2** 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. **MP.2:** Reason abstractly and quantitatively. **MP.7:** Look for and make use of structure.

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Topic 5: Solve Problems Using Equations and Inequalities	
5-1 Write Two-Step Equations	**7.EE.B.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. **MP.2:** Reason abstractly and quantitatively. **MP.4:** Model with mathematics. **MP.7:** Look for and make use of structure.
5-2 Solve Two-Step Equations	**7.EE.B.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. **7.EE.B.4a** 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. **MP.1:** Make sense of problems and persevere in solving them. **MP.7:** Look for and make use of structure.

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5-3 Solve Equations Using the Distributive Property	**7.EE.B.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. **7.EE.B.4a** 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. **MP.1:** Make sense of problems and persevere in solving them. **MP.2:** Reason abstractly and quantitatively. **MP.3:** Construct viable arguments and critique the reasoning of others. **MP.4:** Model with mathematics. **MP.7:** Look for and make use of structure.
5-4 Solve Inequalities Using Addition or Subtraction	**7.EE.B.4a** 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. **MP.2:** Reason abstractly and quantitatively. **MP.4:** Model with mathematics. **MP.6:** Attend to precision.
5-5 Solve Inequalities Using Multiplication or Division	**7.EE.B.4a** 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. **MP.2:** Reason abstractly and quantitatively. **MP.3:** Construct viable arguments and critique the reasoning of others. **MP.6:** Attend to precision. **MP.7:** Look for and make use of structure.

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3-Act Mathematical Modeling: Digital Downloads	**7.EE.B.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. **7.EE.B.4a** 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. **MP.1:** Make sense of problems and persevere in solving them. **MP.2:** Reason abstractly and quantitatively. **MP.3:** Construct viable arguments and critique the reasoning of others. **MP.4:** Model with mathematics. **MP.5:** Use appropriate tools strategically. **MP.7:** Look for and make use of structure. **MP.8:** Look for and express regularity in repeated reasoning.
5-6 Solve Two-Step Inequalities	**7.EE.B.4a** 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. **MP.1:** Make sense of problems and persevere in solving them. **MP.2:** Reason abstractly and quantitatively. **MP.4:** Model with mathematics. **MP.7:** Look for and make use of structure.
5-7 Solve Multi-Step Inequalities	**7.EE.B.4a** 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. **MP.2:** Reason abstractly and quantitatively. **MP.3:** Construct viable arguments and critique the reasoning of others. **MP.4:** Model with mathematics. **MP.7:** Look for and make use of structure.

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Topic 6 Use Sampling to Draw Inferences About Populations	
6-1 Populations and Samples	**7.SP.A.1** 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. **MP.1:** Make sense of problems and persevere in solving them. **MP.2:** Reason abstractly and quantitatively. **MP.3:** Construct viable arguments and critique the reasoning of others. **MP.6:** Attend to precision. **MP.8:** Look for and express regularity in repeated reasoning.
6-2 Draw Inferences from Data	**7.SP.A.1** 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. **7.SP.A.2** 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. **7.RP.A.2c** Represent proportional relationships by equations. **MP.1:** Make sense of problems and persevere in solving them. **MP.2:** Reason abstractly and quantitatively. **MP.3:** Construct viable arguments and critique the reasoning of others. **MP.4:** Model with mathematics.

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6-3 Make Comparative Inferences About Populations	**7.SP.B.3** 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. **7.SP.B.4** Use measures of center and measures of variability for numerical data from random samples to draw informal comparative inferences about two populations. **MP.1:** Make sense of problems and persevere in solving them. **MP.2:** Reason abstractly and quantitatively. **MP.4:** Model with mathematics. **MP.7:** Look for and make use of structure. **MP.8:** Look for and express regularity in repeated reasoning.
6-4 Make More Comparative Inferences About Populations	**7.SP.B.3** 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. **7.SP.B.4** Use measures of center and measures of variability for numerical data from random samples to draw informal comparative inferences about two populations. **MP.2:** Reason abstractly and quantitatively. **MP.3:** Construct viable arguments and critique the reasoning of others. **MP.4:** Model with mathematics. **MP.8:** Look for and express regularity in repeated reasoning.

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3-Act Mathematical Modeling: Raising Money	**7.SP.A.1** 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. **7.SP.A.2** 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. **7.RP.A.3** Use proportional relationships to solve multistep ratio and percent problems. **MP.1:** Make sense of problems and persevere in solving them. **MP.2:** Reason abstractly and quantitatively. **MP.3:** Construct viable arguments and critique the reasoning of others. **MP.4:** Model with mathematics. **MP.5:** Use appropriate tools strategically. **MP.7:** Look for and make use of structure. **MP.8:** Look for and express regularity in repeated reasoning.

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Topic 7 Probability	
7-1 Understand Likelihood and Probability	**7.SP.C.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 1/2 indicates an event that is neither unlikely nor likely, and a probability near 1 indicates a likely event. **7.EE.B.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. **MP.1:** Make sense of problems and persevere in solving them. **MP.2:** Reason abstractly and quantitatively. **MP.3:** Construct viable arguments and critique the reasoning of others. **MP.4:** Model with mathematics.
7-2 Understand Theoretical Probability	**7.SP.C.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. **7.RP.A.2c** Represent proportional relationships by equations. **MP.1:** Make sense of problems and persevere in solving them. **MP.2:** Reason abstractly and quantitatively. **MP.3:** Construct viable arguments and critique the reasoning of others. **MP.4:** Model with mathematics. **MP.7:** Look for and make use of structure.

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7-3 Understand Experimental Probability	**7.SP.C.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. **7.SP.C.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. **MP.2:** Reason abstractly and quantitatively. **MP.3:** Construct viable arguments and critique the reasoning of others. **MP.7:** Look for and make use of structure.
7-4 Find Probability Models	**7.SP.C.7a** Develop a uniform probability model by assigning equal probability to all outcomes, and use the model to determine probabilities of events. **7.SP.C.7a** Develop a probability model (which may not be uniform) by observing frequencies in data generated from a chance process. **7.EE.B.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. **MP.2:** Reason abstractly and quantitatively. **MP.3:** Construct viable arguments and critique the reasoning of others. **MP.4:** Model with mathematics. **MP.6:** Attend to precision. **MP.7:** Look for and make use of structure.

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3-Act Mathematical Modeling: Photo Finish	**7.SP.C.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 1/2 indicates an event that is neither unlikely nor likely, and a probability near 1 indicates a likely event. **7.SP.C.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. **7.SP.C.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. **MP.1:** Make sense of problems and persevere in solving them. **MP.2:** Reason abstractly and quantitatively. **MP.3:** Construct viable arguments and critique the reasoning of others. **MP.4:** Model with mathematics. **MP.5:** Use appropriate tools strategically. **MP.6:** Attend to precision. **MP.7:** Look for and make use of structure. **MP.8:** Look for and express regularity in repeated reasoning.
7-5 Determine Outcomes of Compound Events	**7.SP.C.8a** 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. **MP.1:** Make sense of problems and persevere in solving them. **MP.2:** Reason abstractly and quantitatively. **MP.7:** Look for and make use of structure. **MP.8:** Look for and express regularity in repeated reasoning.

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7-6 Find Probabilities of Compound Events	**7.SP.C.8a** 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. **MP.1:** Make sense of problems and persevere in solving them. **MP.4:** Model with mathematics. **MP.7:** Look for and make use of structure. **MP.8:** Look for and express regularity in repeated reasoning.
7-7 Simulate Compound Events	**7.SP.C.8c** Design and use a simulation to generate frequencies for compound events. **MP.1:** Make sense of problems and persevere in solving them. **MP.3:** Construct viable arguments and critique the reasoning of others. **MP.4:** Model with mathematics. **MP.5:** Use appropriate tools strategically. **MP.7:** Look for and make use of structure.
Topic 8 Solve Problems Involving Geometry	
8-1 Solve Problems Involving Scale Drawings	**7.G.A.1** 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. **MP.2:** Reason abstractly and quantitatively. **MP.7:** Look for and make use of structure. **MP.8:** Look for and express regularity in repeated reasoning.
8-2 Draw Geometric Figures	**7.G.A.2** 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. **MP.1:** Make sense of problems and persevere in solving them. **MP.2:** Reason abstractly and quantitatively. **MP.3:** Construct viable arguments and critique the reasoning of others. **MP.5:** Use appropriate tools strategically.

enVision Mathematics, ©2021 **Grade 7 Lessons**	**Common Core State Standards for Mathematics** **Grade 7**
8-3 Draw Triangles with Given Conditions	**7.G.A.2** 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. **MP.1:** Make sense of problems and persevere in solving them. **MP.7:** Look for and make use of structure. **MP.8:** Look for and express regularity in repeated reasoning.
8-4 Solve Problems using Angle Relationships	**7.G.B.5** 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. **MP.2:** Reason abstractly and quantitatively. **MP.3:** Construct viable arguments and critique the reasoning of others. **MP.7:** Look for and make use of structure.
8-5 Solve Problems Involving Circumference of a Circle	**7.G.B.4** 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. **7.EE.B.4a** 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. **MP.1:** Make sense of problems and persevere in solving them. **MP.3:** Construct viable arguments and critique the reasoning of others. **MP.6:** Attend to precision. **MP.7:** Look for and make use of structure. **MP.8:** Look for and express regularity in repeated reasoning.

enVision Mathematics, ©2021 Grade 7 Lessons	Common Core State Standards for Mathematics Grade 7
8-6 Solve Problems Involving Area of a Circle	**7.G.B.4** 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. **7.EE.B.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. **7.EE.B.4a** 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. **MP.2:** Reason abstractly and quantitatively. **MP.6:** Attend to precision. **MP.7:** Look for and make use of structure.
3-Act Mathematical Modeling: Whole Lotta Dough	**7.G.B.4** 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. **MP.1:** Make sense of problems and persevere in solving them. **MP.2:** Reason abstractly and quantitatively. **MP.3:** Construct viable arguments and critique the reasoning of others. **MP.4:** Model with mathematics. **MP.5:** Use appropriate tools strategically. **MP.7:** Look for and make use of structure. **MP.8:** Look for and express regularity in repeated reasoning.

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8-7 Describe Cross Sections	**7.G.A.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. **MP.1:** Make sense of problems and persevere in solving them. **MP.6:** Attend to precision. **MP.7:** Look for and make use of structure. **MP.8:** Look for and express regularity in repeated reasoning.
8-8 Solve Problems Involving Surface Area	**7.G.B.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. **7.NS.A.3** Solve real-world and mathematical problems involving the four operations with rational numbers. **7.EE.B.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. **7.EE.B.4a** 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. **MP.1:** Make sense of problems and persevere in solving them. **MP.2:** Reason abstractly and quantitatively. **MP.7:** Look for and make use of structure.

enVision Mathematics, ©2021 Grade 7 Lessons	Common Core State Standards for Mathematics Grade 7
8-9 Solve Problems Involving Volume	**7.G.B.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. **7.NS.A.3** Solve real-world and mathematical problems involving the four operations with rational numbers. **7.EE.B.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. **7.EE.B.4a** 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. **MP.1:** Make sense of problems and persevere in solving them. **MP.2:** Reason abstractly and quantitatively. **MP.4:** Model with mathematics. **MP.7:** Look for and make use of structure.