6th/7th Grade Accelerated Mathematics Map/Pacing Guide
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Topics & Standards **Quarter 1**	**Mathematical Practices** 1. Make sense of problems and persevere in solving them. 2. Reason abstractly and quantitatively. 3. Construct viable arguments and critique the reasoning of others. 4. Model with mathematics. 5. Use appropriate tools strategically. 6. Attend to precision. 7. Look for and make use of structure. 8. Look for and express regularity in repeated reasoning. **Unit: 6th grade wrap-up - Number System** **Compute fluently with multi-digit numbers and find common factors and multiples.** ● **6.NS.2** Fluently divide multi-digit numbers using the standard algorithm. ● **6.NS.3** Fluently add, subtract, multiply, and divide multi-digit decimals using the standard algorithm for each operation. ● **6.NS.4** Find the greatest common factor of two whole numbers less than or equal to 100 and the least common multiple of two numbers less than or equal to 12. Use the distributive property to express a sum of two whole numbers 1–100 with a common factor a multiple of a sum of two whole numbers with no common factor. For example, express 36 + 8 as 4 (9 + 2). **Apply and extend previous understandings of numbers to the system of rational numbers.** ● **6.NS.5** Understand that positive and negative numbers are used together to describe quantities having opposite directions or values (e.g., temperature above/below zero, elevation above/below sea level, credits/debits, positive/ negative electric charge); use positive and negative numbers to represent quantities in real-world contexts, explaining the meaning of 0 in each situation. ● **6.NS.6** Understand a rational number as a point on the number line. Extend number line diagrams and coordinate axis familiar from previous grades to represent points on the line and in the plane with negative number coordinates. a. Recognize opposite signs of numbers as indicating locations on opposite sides of 0 on the number line; recognize that the opposite of the opposite of a number is the number itself, e.g.,–(–3) = 3, and that 0 is its own opposite. b. Understand signs of numbers in ordered pairs as indicating locations in quadrants of the coordinate plane; recognize that when two ordered pairs differ only by signs, the locations of the points are related by reflections across one or both axes. c. Find and position integers and other rational numbers on a horizontal or vertical number line diagram; find and position pairs of integers and other rational numbers on a coordinate plane. ● **6.NS.8.** Solve real-world and mathematical problems by graphing points in all four quadrants of the coordinate plane. **Unit 1: Ratio and Proportional Relationships**

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CH 1: "How can you show that two objects are proportional?"

Ratios and Proportions

- **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. *(For example, if a person walks ½ mile in each ¼ hour, compute the unit rate as the complex fraction ½ / ¼ miles per hour, equivalently 2 miles per hour.)*
- **7.RP.2** Recognize and represent proportional relationships between quantities.
    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.
    b. Identify constant of proportionality(unit rate) in tables, graphs, equations, diagrams,& verbal descriptions of proportional relationships
    c. Represent proportional relationships by equations.
    d. Explain what a point (x, y) on the graph of a proportional relationship means in terms of the situation.
- **7.RP.3** Use proportional relationships to solve multi-step rational and percent problems. Examples: simple interest, tax, markups and markdowns, gratuities and commissions, fees, percent increase and decrease, percent error.
- **6.RP.1** Understand the concept of a ratio and use ratio language to describe a ratio relationship between two quantities. For example, "The ratio of wings to beaks in the bird house at the zoo was 2:1, because for every 2 wings there was 1 beak." "For every vote candidate A received, candidate C received nearly three votes."
- **6.RP.2** Understand the concept of a unit rate a/b associated with a ratio a:b with b ≠ 0, and use rate language in the context of a ratio relationship. For example, "This recipe has a ratio of 3 cups of flour to 4 cups of sugar, so there is ¾ cup of flour for each cup of sugar." "We paid $75 for 15 hamburgers, which is a rate of $5 per hamburger."1
- **6.RP.3** Use ratio and rate reasoning to solve real-world and mathematical problems, e.g., by reasoning about tables of equivalent ratios, tape diagrams, double number line diagrams, or equations.
    a. Make tables of equivalent ratios relating quantities with whole- number measurements, find missing values in the tables, and plot the pairs of values on the coordinate plane. Use tables to compare ratios.
    b. Solve unit rate problems including those involving unit pricing and constant speed. For example, if it took 7 hours to mow 4 lawns, then at that rate, how many lawns could be mowed in 35 hours? At what rate were lawns being mowed?
    c. Find a percent of a quantity as a rate per 100 (e.g., 30% of a quantity means 30/100 times the quantity); solve problems involving finding the whole, given a part and the percent. d. Use ratio reasoning to convert measurement units; manipulate and transform units appropriately when multiplying or dividing quantities.

Number Systems

- **7.NS.3** Apply and extend previous understandings of operations with fractions to add, subtract, multiply, and divide rational numbers. Computations with rational numbers extend the rules for manipulating fractions to complex fractions.

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CH 2: "How can percent help you understand situations involving money?

Ratio and Proportions

- **7.RP.2** Recognize and represent proportional relationships between quantities.
  c. Represent proportional relationships by equations.
- **7.RP.3** Use proportional relationships to solve multi-step rational and percent problems. Examples: simple interest, tax, markups and markdowns, gratuities and commissions, fees, percent increase and decrease, percent error.

Expressions and Equations

- **7.EE.2** Use properties of operations to generate equivalent expressions.
- **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.

SPIRAL REVIEW

- **Aleks Software:**
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Assessment (Evidence)	***Resources (Curriculum & Textbook)***	***Key Concept tools & practices for Differentiation***
Formative & Summative Assessments ● 4-7 tasks that reach DOK 3-4 ● At least (1) GRASPS per quarter & ● Illuminate weekly **MGraw-Hill Glencoe Assessment Resources (Formative, Pre/Post, and Summative):** ● Quick Checks ● Spiral Reviews	**McGraw-Hill Glencoe, Course 2** **6th GRADE WRAP-UP (3 weeks)** ● Add, Subtract, Multiply, Divide Decimals ● Fractions ● Long Division ● GCF ● Opposites ● Ordered Pairs ● Coordinate points/Graphing	Meaning Making *Resources* Embedded within each Lesson: ● Bell work/lesson openers/notebook add-ins ● worked examples ● pre-written student methods ● error analysis ● sorting activities/flash cards/unit rate ● Gizmos introduction

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	• Chapter Quizzes and Tests & Mid-chapter Review • Aleks Software- *Tier 1 and 2 students should be accessing Aleks at least 2 hours or 10 topics per week. Tier 3 students should be accessing Aleks at least 3 hours or 15 topics per week.	**CHAPTER 1: Ratio & Proportional Reasoning - Lessons 1-9 (3-4 weeks)** **Inquiry labs and projects** • Unit Rate • Ratios • P.S.I: The 4-step plan • Proportional/Non-proportional Relationships • Rate of Change • 21st Century: Engineering **CHAPTER 2 Percent - Lessons 1-8 (3 weeks)** **Inquiry labs and projects** • Percent • Percent of Change • P.S.I: Reasonable/Unreasonable Answers • Compound Interest • 21st Century: Video Game Design • Unit: Travel Expert *Financial Literacy should be incorporated after CH 2 www.NEA.org (Resources for teaching Financial Literacy) www.practicalmoneyskills.com www.aeseducation.com ***CH 2 may continue into Qtr. 2**	• Number sense (multiplication, division, fractional, part to whole) • Discuss to Understand • Think for Yourself • Work with Your Partner Share with the Class OH.Math.7.RP.1(**Gizmos)** Beam to Moon (Ratios and Proportions) Household Energy Usage Road Trip (Problem Solving) Unit Conversions Direct and Inverse Variation Estimating Population Size Geometric Probability Part-to-part and Part-to-whole Ratios Percent and Proportions Proportions and Common Multipliers Percent's and Proportions
Topic & Standard **Quarter 2**	**Mathematical Practices** 1. Make sense of problems and persevere in solving them. 2. Reason abstractly and quantitatively. 3. Construct viable arguments and critique the reasoning of others. 4. Model with mathematics. 5. Use appropriate tools strategically. 6. Attend to precision. 7. Look for and make use of structure. 8. Look for and express regularity in repeated reasoning. **Unit 2 The Number System**		

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CH 3: "What happens when you add, subtract, multiply, and divide integers?"

Number Systems

- **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.
    a. Describe situations in which opposite quantities combine to make 0.
    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.
    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.
    d. Apply properties of operations as strategies to add and subtract rational numbers.
- **7.NS.2** Apply & extend previous understandings of operations with fractions to add, subtract, multiply & divide rational numbers.
    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.
    b. 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.
    c. Apply properties of operations as strategies to multiply and divide rational numbers.
- **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.
- **6.NS.7** Understand ordering and absolute value of rational numbers.
    a. Interpret statements of inequality as statements about the relative position of two numbers on a number line diagram. For example, interpret –3 > –7 as a statement that –3 is located to the right of –7 on a number line oriented from left to right.
    b. Write, interpret, and explain statements of order for rational numbers in real-world contexts. For example, write –3 ˚C > –7˚C to express the fact that –3˚C is warmer than –7˚C.
    c. Understand the absolute value of a rational number as its distance from 0 on the number line; interpret absolute value as magnitude for a positive or negative quantity in a real-world situation. For example, for an account balance of –30 dollars, write |–30| = 30 to describe the size of the debt in dollars.
    d. Distinguish comparisons of absolute value from statements about order. For example, recognize that an account balance less than –30 dollars represents a debt greater than 30 dollars.

Expressions and Equations

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- **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.

CH 4: "What happens when you add, divide, multiply, and subtract fractions?"

Number Systems

- **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.
    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.
    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.
    d. Apply properties of operations as strategies to add and subtract rational numbers.
- **7. NS.2** Apply and extend previous understandings of operations with fractions to add, subtract, multiply and divide rational numbers.
    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.
    b. 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.
    c. Apply properties of operations as strategies to multiply and divide rational numbers.
    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.
- **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.

Ratio and Proportions

- **7.RP.3** Use proportional relationships to solve multistep ratio and percent problems.

Expressions and Equations

- **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.

<u>Unit 3 Expressions and Equations</u>

CH 5: "How can you use numbers and symbols to represent mathematical ideas?"

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Expressions and Equations

- **7.EE.1** Apply properties of operations as strategies to add, subtract, factor, and expand linear expressions with rational coefficients.
- **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.
- **6.EE.2** Write, read, and evaluate expressions in which letters stand for numbers.
    - Write expressions that record operations with numbers and with letters standing for numbers. For example, express the calculation "Subtract y from 5" as 5 – y.
    - Identify parts of an expression using mathematical terms (sum, term, product, factor, quotient, coefficient); view one or more parts of an expression as a single entity. For example, describe the expression 2 (8 + 7) as a product of two factors; view (8 + 7) as both a single entity and a sum of two terms.
    - Evaluate expressions at specific values of their variables. Include expressions that arise from formulas used in real-world problems. Perform arithmetic operations, including those involving whole number exponents, using the algebraic order of operations when there are no parentheses to specify a particular order. For example, use the formulas $V = s^3$ and $A = 6s^2$ to find the volume and surface area of a cube with sides of length s = 1/2.
- **6.EE.3** Apply the properties of operations to generate equivalent expressions. For example, apply the distributive property to the expression 3 (2 + x) to produce the equivalent expression 6 + 3x; apply the distributive property to the expression 24x + 18y to produce the equivalent expression 6 (4x + 3y); apply properties of operations to y + y + y to produce the equivalent expression 3y.

Number System

- **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.

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	Assessment (Evidence)	*Resources (Curriculum /Textbook)*	*Concept Tools & Practices for Differentiation*
	Formative & Summative Assessments ● 4-7 tasks that reach DOK 3-4 ● At least (1) GRASPS per quarter ● Illuminate weekly **McGraw-Hill Glencoe Assessment Resources (Formative, Pre/Post, and Summative):** ● Quick Checks ● Spiral Reviews ● Chapter Quizzes and Tests & Mid-chapter Review Aleks Software- *Tier 1 and 2 students should be accessing Aleks at least 2 hours or 10 topics per week. Tier 3 students should be accessing Aleks at least 3 hours or 15 topics per week.	**McGraw-Hill Glencoe, Course 2** ***CH 2 may continue into Qtr. 2** **CHAPTER 3 Integers - Lessons 1-5 (3 weeks)** **Inquiry labs and projects** ● Integers: Add, Subtract, Multiply, Division ● Absolute Value ● P.S.I: Look for a Pattern ● Properties ● 21st Century: Astronomy **CHAPTER 4 Rational Numbers - Lessons 1-8 (2-3 weeks) - 6th grade review** **Inquiry labs and projects** ● Rational numbers on a number line ● Add/Subtract on a number line ● P.S.I: Draw a Diagram ● 21st Century: Fashion ● Unit: Ocean Depths **CHAPTER 5 Expressions - Lessons 1-8 (3 weeks)** **Inquiry labs and projects** ● Sequences ● Properties including Distributive ● Factor Linear Expressions ● P.S.I: Make a table ● 21st Century: Animal Conservations ● **Additional 6th grade review:** Constant, Coefficients, Like Terms, Factors	OH.Math.7.NS.1a: Adding and Subtracting Integers Integers, Opposites, and Absolute Values Rational Numbers, Opposites, and Absolute Values Adding on the Number Line Improper Fractions and Mixed Numbers Simplifying Algebraic Expressions I Sums and Differences with Decimals OH.Math.7.NS.2c: Dividing Fractions Dividing Mixed Numbers Multiplying Fractions Multiplying Mixed Numbers Multiplying with Decimals Percent's, Fractions, and Decimals OH.Math.7.NS.3: Adding Fractions (Fraction Tiles) Adding and Subtracting Integers Adding on the Number Line Dividing Fractions Dividing Mixed Numbers Estimating Population Size Estimating Sums and Differences Fractions Greater than One (Fraction Tiles) Improper Fractions and Mixed Numbers Multiplying Fractions Multiplying Mixed Numbers Multiplying with Decimals

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Topic & Standard	
Quarter 3	**Mathematical Practices** 1. Make sense of problems and persevere in solving them. 2. Reason abstractly and quantitatively. 3. Construct viable arguments and critique the reasoning of others. 4. Model with mathematics. 5. Use appropriate tools strategically. 6. Attend to precision. 7. Look for and make use of structure. 8. Look for and express regularity in repeated reasoning. **CH 6: "What does it mean to say two quantities are equal?"** **Expressions and Equations** ● **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 computations and estimation strategies. ● **7.EE.4** Use variables to represent quantities in a real-world or mathematical problems, and construct simple equations and inequalities to solve problems by reasoning about the quantities.

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a. Solve word problems leading to equations in 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.
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.

- **6.EE.4** Identify when two expressions are equivalent (i.e., when the two expressions name the same number regardless of which value is substituted into them). For example, the expressions y + y + y and 3y are equivalent because they name the same number regardless of which number y stands for. Reason about and solve one-variable equations and inequalities.
- **6.EE.5** Understand solving an equation or inequality as a process of answering a question: which values from a specified set, if any, make the equation or inequality true? Use substitution to determine whether a given number in a specified set makes an equation or inequality true.
- **6.EE.6** Use variables to represent numbers and write expressions when solving a real-world or mathematical problem; understand that a variable can represent an unknown number, or, depending on the purpose at hand, any number in a specified set. 7. Solve real-world and mathematical problems by writing and solving equations of the form x + p = q and px = q for cases in which p, q and x are all nonnegative rational numbers.
- **6.EE.8** Write an inequality of the form x > c or x < c to represent a constraint or condition in a real-world or mathematical problem. Recognize that inequalities of the form x > c or x < c have infinitely many solutions; represent solutions of such inequalities on number line diagrams.

Unit 4 Geometry

CH 7: "How does Geometry help us describe real-world objects?"

Geometry

- **7.G.1** Solve problems involving similar figures with right triangles, other triangles, and special quadrilaterals.
  a. Compute actual lengths and areas from a scale drawing and reproduce a scale drawing at a different scale.
  b. Represent proportional relationships within and between similar figures.
- **7.G.2** Draw (freehand, with ruler and protractor, and with technology) geometric figures with given conditions.
  c. 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.
  d. 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.
- **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.
- **7.G.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.

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- **6.G.3** Draw polygons in the coordinate plane given coordinates for the vertices; use coordinates to find the length of a side joining points with the same first coordinate or the same second coordinate. Apply these techniques in the context of solving real-world and mathematical problems.

CH 8: "How do measurements help you describe real-world objects?"
Geometry

- **7.G.4** Work with circles
  a. Explore and understand the relationships among the circumference, diameter, area, and radius of a circle.
  b. Know & use the formulas for the area and circumference of a circle and use them to solve real-world and mathematical problems.
- **7.G.6** Solve real-life and mathematical problems involving angle measure, area, surface area, and volume.
- **6.G.1** Through composition into rectangles or decomposition into triangles, find the area of right triangles, other triangles, special quadrilaterals, and polygons; apply these techniques in the context of solving real-world and mathematical problems.
- **6.G.4** Represent three-dimensional figures using nets made up of rectangles and triangles, and use the nets to find the surface area of these figures. Apply these techniques in the context of solving real-world and mathematical problems.
- **6.G.2.** Find the volume of a right rectangular prism with fractional edge lengths by packing it with unit cubes of the appropriate unit fraction edge lengths, and show that the volume is the same as would be found by multiplying the edge lengths of the prism. Apply the formulas V = l w h and V = b h to find volumes of right rectangular prisms with fractional edge lengths in the context of solving real-world and mathematical problems.

Unit 5 Statistics and Probability
CH 9: "How can you predict the outcome of future events?"
Statistics and Probability

- **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 ½ indicates an event that is neither unlikely nor likely, and a probability near 1 indicates a likely event.
- **7.SP.6** Approximate the probability of a chance event by collecting data on the chance process that products it and observing its long-run relative frequency, and predict the approximate relative frequency give the probability.
- **7.SP.7** Develop a probability model and use it to find probabilities of events. Compare probabilities from a model to observed frequencies; if agreement is not good, explain possible sources of the discrepancy.
  a. Develop a uniform probability model and use it to find probabilities of events. Compare probabilities form a model to observed frequencies; if the agreement is not good, explain possible sources of the discrepancy.
  b. Develop a probability model (which may not be uniform) by observing frequencies in data generated from a chance process.
- **7.SP.8** Find probabilities of compound events using organized lists, tables, tree diagrams, and simulation.

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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.
a. Represent sample spaces for compound events using methods such as organized lists, tables, and tree diagrams. For an event describes in everyday language (e.g., rolling double sizes), identify the outcomes in the sample space which compose the event.
b. Design and use a simulation to generate frequencies for the compound events.

Expressions and Equations

- **6.EE.9** Use variables to represent two quantities in a real-world problem that change in relationship to one another; write an equation to express one quantity, thought of as the dependent variable, in terms of the other quantity, thought of as the independent variable. Analyze the relationship between the dependent and independent variables using graphs and tables, and relate these to the equation. For example, in a problem involving motion at constant speed, list and graph ordered pairs of distances and times, and write the equation d = 65t to represent the relationship between distance and time

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	Formative & Summative Assessments ●4-7 tasks that reach DOK 3-4 ●At least (1) GRASPS per quarter ●Illuminate weekly **McGraw-Hill Glencoe Assessment Resources (Formative, Pre/Post, and Summative):** ● Quick Checks ● Spiral Reviews ● Chapter Quizzes and Tests & Mid-chapter Review Aleks Software- *Tier 1 and 2 students should be accessing Aleks at least 2 hours or 10 topics per week. Tier 3 students should be accessing Aleks at least 3 hours or 15 topics per week.	**CHAPTER 6 Equations and Inequalities - Lessons 1-8 (4 weeks)** **Inquiry lab and projects** ● One-step equations (Addition/Subtraction) ● Solve equations w/ Bar diagram and rational coefficient ● Two-step equations ● Inequalities ● P.S.I: Work backwards ● 21st Century: Veterinary Medicine ● Unit: Stand Up and Be Counted **CHAPTER 7 Geometric Figures- Lessons 1-6 (1-2 weeks)** **Inquiry lab and projects** ● Create and Draw Triangles ● Investigate online maps and scale drawings ● P.S.I: Make a Model ● 21st Century: Design Engineering **CHAPTER 8 Measure Figures - Lessons 18 (2-3 weeks)** **Inquiry lab and projects** ● Area of all polygons including circles ● Circumference ● P.S.I: Solve simpler problems ● Volume of Prisms and Pyramids ● Nets of 3-D objects ● Surface Area ● Composite Figures ● 21st Century: Landscape Architecture ● Unit: Turn Over New Leaf **CHAPTER 9 Probability - Lessons 1-7 (2 weeks)** **Inquiry lab and projects** ● Relative Frequency	Modeling One-Step Equations Modeling and Solving Two-Step Equations Solving Algebraic Equations II Solving Equations on the Number Line Solving Two-Step Equations. Absolute Value Equations and Inequalities Rational Numbers, Opposites, and Absolute Values Solving Linear Inequalities in One Variable OH.Math.7.G.2: Draw (freehand, with ruler and protractor, and with technology) geometric figures with given conditions. Concurrent Lines, Medians, and Altitudes Triangle Inequalities OH.Math.7.G.2b: Classifying Quadrilaterals Special Parallelograms OH.Math.7.G.B: OH.Math.7.G.4: Work with circles. OH.Math.7.G.4a: Circumference and Area of Circles OH.Math.7.G.4b: Circumference and Area of Circles OH.Math.7.G.5: Investigating Angle Theorems Triangle Angle Sum OH.Math.7.G.6: Area of Parallelograms Area of Triangles

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		• Fair/Unfair games • Simulate Compound Events • P.S.I: Act it Out • Independent/Dependent Events • 21st Century: Medicine **<u>*CH 9 may be continued into Qtr. 4</u>**	Chocomatic (Multiplication, Arrays, and Area) Fido's Flower Bed (Perimeter and Area) Perimeter and Area of Rectangles Prisms and Cylinders Pyramids and Cones Surface and Lateral Areas of Prisms and Cylinders Theoretical and Experimental Probability OH.Math.7.SP.7b: Spin the Big Wheel! (Probability) Theoretical and Experimental Probability OH.Math.7.SP.8: OH.Math.7.SP.8a: Independent and Dependent Events Theoretical and Experimental Probability Permutations and Combinations OH.Math.7.SP.8c: Independent and Dependent Events Populations and Samples

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Topic & Standard	
Quarter 4	**Mathematical Practices** 1. Make sense of problems and persevere in solving them. 2. Reason abstractly and quantitatively. 3. Construct viable arguments and critique the reasoning of others. 4. Model with mathematics. 5. Use appropriate tools strategically. 6. Attend to precision. 7. Look for and make use of structure. 8. Look for and express regularity in repeated reasoning. **CH 10 "How do you know which type of graph to do when displaying data?** **Statistics and Probability** ● **7.SP.1** Understand that statistics can be used to gain information about a population by examining a sample of the population. a. Differentiate between a sample and a population. 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 ● **7.SP.2** Broaden statistical reasoning by using the GAISE model. 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)** b. Collect Data: Design and use a plan to collect appropriate data to answer a statistical question. (**GAISE Model, step 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**) d. Interpret Results: Draw logical conclusions and make generalizations from the data based on the original.**(GAISE Model, step 4)** ● **7.SP.3** Describe and analyze distributions. a. Summarize quantitative data sets in relation to their context by using mean absolute deviation (MAD), interpreting mean as a balance point. 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 ● **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.~~ **(deleted standard)** ● **6.SP.1** Develop statistical reasoning by using the GAISE model:

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a. Formulate Questions: Recognize and formulate a statistical question as one that anticipates variability and can be answered with quantitative data. For example, "How old am I?" is not a statistical question, but "How old are the students in my school?" is a statistical question because of the variability in students' ages. (GAISE Model, step 1)
b. Collect Data: Design and use a plan to collect appropriate data to answer a statistical question. (GAISE Model, step 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)
d. Interpret Results: Draw logical conclusions from the data based on the original question. (GAISE Model, step 4)

- **6.SP.2** Understand that a set of data collected to answer a statistical question has a distribution which can be described by its center, spread, and overall shape.
- **6.SP.3** Recognize that a measure of center for a numerical data set summarizes all of its values with a single number, while a measure of variation describes how its values vary with a single number. Summarize and describe distributions.
- **6.SP.4** Display numerical data in plots on a number line, including dot plots(line plots), histograms, and box plots. (GAISE Model, step 3)
- **6.SP.5** Summarize numerical data sets in relation to their context.
  a. Report the number of observations.
  b. Describe the nature of the attribute under investigation, including how it was measured and its units of measurement.
  c. Find the quantitative measures of center (median and/or mean) for a numerical data set and recognize that this value summarizes the data set with a single number. Interpret mean as an equal or fair share. Find measures of variability (range and interquartile range) as well as informally describe the shape and the presence of clusters, gaps, peaks, and outliers in a distribution.
  d. Choose the measures of center & variability, based on the shape of the data distribution & the context in which data were gathered.

Gaise Model:

- **Step 1: Formulate the Question**
  - Students should pose their own statistical question of interest (Level C).
  - Students are starting to form questions that allow for generalizations of a population (Level B-C).
- **Step 2: Collect Data**
  - Students should begin to use random selection or random assignment (Level B).
- **Step 3: Analyze Data**
  - Students measure variability within a single group using MAD, IQR, and/or standard deviation (Level A).
  - Students compare measures of center and spread between groups using displays and values (Level B).
  - Students describe potential sources of error (Level B).
  - Students understand and use particular properties of distributions as tools of analysis moving toward using global characteristics of distributions (Level B-C).
- **Step 4: Interpret Results**

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- Students acknowledge that looking beyond the data is feasible by interpreting differences in shape, center, & spread (Level B).
- Students determine if a sample is representative of a population and start to move towards generalization (Level B-C).
- Students note the difference between two groups with different conditions (Level B).

SPIRAL REVIEW

- **Aleks Software:**
  - Tier 1 and 2 students should be accessing Aleks at least 2 hours or 10 topics per week. Tier 3 students should be accessing Aleks at least 3 hours or 15 topics per week. This allows students to spiral content throughout the year.
- **iReady**
  - Students are assigned lessons based on their academic needs, not necessarily the current standards being taught. Students have a goal of obtaining at least 45 minutes/week on iReady and maintaining a 70% or higher passing rate. Students' time on iReady is actively monitored to ensure they are working diligently and accurately.

MAJOR **SUPPORTING** **ADDITIONAL**

Students should spend the majority of learning on the major work of the grade level; which should account for at least 65% of the academic year (Achieve the core, n.d.)**. Major content should be emphasized via a greater number of days of instruction, depth and mastery.**

Assessment (Evidence)	*Resources (Curriculum /Textbook)*	*Concept Tools & Practices for Differentiation*
Formative & Summative Assessments ● 4-7 tasks that reach DOK 3-4 ● At least (1) GRASPS per quarter ● Illuminate weekly **McGraw-Hill Glencoe Assessment Resources (Formative, Pre/Post, and Summative):** ● Quick Checks ● Spiral Reviews ● Chapter Quizzes and Tests & Mid-chapter Review ● Aleks Software- *Tier 1 and 2 students should be accessing Aleks at least 2 hours or 10 topics per week.	***CH 9 may continue into Qtr. 4** **CHAPTER 10 Statistics - Lessons 1-5 (2-3 weeks)** **Inquiry lab and Projects** ● Multiple Samples ● Collect Data ● P.S.I: Use a Graph ● Data Distribution ● 21st Century: Market Research ● Unit: Math Genes **Additional 6th grade review**: ● Graphs (Bar, Line, Circle, Histogram, Frequency, Line plot, Stem/Leaf, Box/Whisker)	OH.Math.7.SP.1b: Polling: City Polling: Neighborhood Populations and Samples OH.Math.7.SP.2: Correlation Movie Reviewer (Mean and Median) Reaction Time 2 (Graphs and Statistics) OH.Math.7.SP.2b Reaction Time 2 (Graphs and Statistics) OH.Math.7.SP.2c: Describing Data Using Statistics Movie Reviewer (Mean and Median)

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	Tier 3 students should be accessing Aleks at least 3 hours or 15 topics per week	● Mean, Median, Mode, Range **During/After testing (6 weeks):** ● **Test Review** ● **Mini-projects**	Polling: City Reaction Time 1 (Graphs and Statistics) Reaction Time 2 (Graphs and Statistics) Real-Time Histogram OH.Math.7.SP.2d Box-and-Whisker Plots OH.Math.7.SP.C: OH.Math.7.SP.3: OH.Math.7.SP.3b: Box-and-Whisker Plots Describing Data Using Statistics Mean, Median, and Mode