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| Select a Course: | Math Grade 7 |
| Teacher: | CORE Math Grade 7 |
| Course: | Math Grade 7 |
| Year: | 2016-17 |
| Months: | - All - |

August

Grade 7 Math Integers, Expressions, and Equations (Pre-Unit)

Enduring Understandings

Essential Questions

Standards

Knowledge & Skills

Academic Language

Variables can be used to represent numbers in any type of mathematical problem.

Understand the difference between an expression and an equation.

Expressions you simplify and equations you solve for the variable's value.

Write and solve multi-step equations with positive integers..

Properties of operations allow us to add linear expressions

When and how are expressions and equations applied to real world situations?

How can the order of operations be applied to evaluating expressions, and solving from one-step to multi-step equations?

What happens when you add, subtract, multiply and divide integers?

7.EE.A.1 - Use properties of operations to generate equivalent expressions ~ Apply properties of operations as strategies to add, subtract, factor, and expand linear expressions with rational coefficients.

7.EE.B.3 - Solve real-life and mathematical problems using numerical and algebraic expressions and equations ~ 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.

CCSS.Math.Practice.MP4 - Model with mathematics.

CCSS.Math.Practice.MP5 - Use appropriate tools strategically.

CCSS.Math.Practice.MP6 - Attend to precision.

CCSS.Math.Practice.MP7 - Look for and make use of structure.

CCSS.Math.Practice.MP8 - Look for and express regularity in repeated reasoning.

7.NS.A.1 - Apply and extend previous understandings of operations with fractions ~ 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.2 - Apply and extend previous understandings of operations with fractions ~ Apply and extend previous understandings of multiplication and division and of fractions to multiply and

Expressions containing positive integers

Properties of operations, integrate when necessary

Simplifying algebraic expressions

Solving one-step positive equations

Solving two-step positive equations

Add, subtract, multiply and divide with integers.

Distributive Property

Commutative Property

Associative Property

Multiplicative Property of Zero

Variable Numerical expression

Algebraic expression

Coefficient

Constant

*Equation

Inequality

Algebra

*Evaluate

Linear

Factored form

Circumference

Combining like terms

divide rational numbers.

7.NS.A.3 - Apply and extend previous understandings of operations with fractions ~ Solve real-world and mathematical problems involving the four operations with rational numbers.

7.NS.A.1a - Apply and extend previous understandings of operations with fractions ~ Describe situations in which opposite quantities combine to make 0.

7.NS.A.1b - Apply and extend previous understandings of operations with fractions ~ 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 - Apply and extend previous understandings of operations with fractions ~ 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 and extend previous understandings of operations with fractions ~ Apply properties of operations as strategies to add and subtract rational numbers.

7.NS.A.2a - Apply and extend previous understandings of operations with fractions ~ 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.2b - Apply and extend previous understandings of operations with fractions ~ 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 and extend previous understandings of operations with fractions ~ Apply properties of operations as strategies to multiply and divide rational numbers.

-  Inverse operation
-  Rate of change
-  *Expression
-  *Equivalent
-  Rational number
-  *Expanded form
-  Term
-  *Simplest Form
-  Identity Property
-  Positive Integer
-  Negative Integer

Grade 7 Math Ratios and Proportional Relationships

Enduring Understandings

ⓘ Rates, ratios, and proportional relationships: express how quantities change in relationship to each other

ⓘ Rates, ratios, and proportional relationships: can be represented in multiple ways

ⓘ Rates, ratios, and proportional relationships: can be applied to problem solving situations

Essential Questions

ⓘ How do rates, ratios, and proportional relationships apply to our world?

ⓘ When and why do I use proportional comparisons?

ⓘ How does comparing quantities describe the relationship between them?

ⓘ How do graphs illustrate proportional relationships?

Standards

7.RP.A.1 - Analyze proportional relationships and use them to solve real-world and mathematical problems
~ 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.2 - Analyze proportional relationships and use them to solve real-world and mathematical problems
~ Recognize and represent proportional relationships between quantities.

7.RP.A.2a - Analyze proportional relationships and use them to solve real-world and mathematical problems
~ 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.2b - Analyze proportional relationships and use them to solve real-world and mathematical problems
~ Identify the constant of proportionality (unit rate) in tables, graphs, equations, diagrams, and verbal descriptions of proportional relationships.

7.RP.A.2c - Analyze proportional relationships and use them to solve real-world and mathematical problems
~ Represent proportional relationships by equations.

7.RP.A.2d - Analyze proportional relationships and use them to solve real-world and mathematical problems
~ 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.

CCSS.Math.Practice.MP1 - Make sense of problems and persevere in solving them.

CCSS.Math.Practice.MP2 - Reason abstractly and quantitatively.

CCSS.Math.Practice.MP3 - Construct viable arguments and critique the reasoning of others.

CCSS.Math.Practice.MP4 - Model with mathematics.

CCSS.Math.Practice.MP5 - Use appropriate tools strategically.

CCSS.Math.Practice.MP6 - Attend to

Knowledge & Skills

ⓘ Rates

ⓘ Proportional and nonproportional relationships

ⓘ Complex fractions

ⓘ Graph proportional relationships

ⓘ Solve proportional relationships

ⓘ Constant rate of change

Academic Language

ⓘ Ratio

ⓘ Rate

ⓘ Proportion

ⓘ Percent Increase

ⓘ Percent Decrease

ⓘ Percent Error

ⓘ Markups

ⓘ Markdowns

ⓘ Discount

ⓘ Scale Factor

ⓘ Simple Interest

ⓘ Percent proportion

ⓘ Unit Rate

ⓘ *Equivalency/Equivalent

ⓘ *Greatest Common Factor (GCF)

ⓘ *Least Common Multiple (LCM)

ⓘ *Area

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| | | precision. CCSS.Math.Practice.MP7 - Look for and make use of structure. CCSS.Math.Practice.MP8 - Look for and express regularity in repeated reasoning. | | |
| <ul style="list-style-type: none"> Rates, ratios, percentages and proportional relationships can be applied to problem solving situations such as interest, tax, discount, etc. Rates, ratios, percentages and proportional relationships can be applied to solve multi-step ratio and percent problems. Scale drawings can be applied to problem solving situations involving geometric figures. Geometrical figures can be used to reproduce a drawing at a different scale. | <ul style="list-style-type: none"> How can I use proportional relationships to solve ratio and percent problems? How can I use scale drawings to compute actual lengths and area? How can I use geometric figures to reproduce a drawing at a different scale? | <p>7.RP.A.3 - Analyze proportional relationships and use them to solve real-world and mathematical problems ~ Use proportional relationships to solve multistep ratio and percent problems.</p> <p>CCSS.Math.Practice.MP3 - Construct viable arguments and critique the reasoning of others.</p> <p>CCSS.Math.Practice.MP4 - Model with mathematics.</p> <p>CCSS.Math.Practice.MP5 - Use appropriate tools strategically.</p> <p>CCSS.Math.Practice.MP6 - Attend to precision.</p> <p>CCSS.Math.Practice.MP7 - Look for and make use of structure.</p> <p>CCSS.Math.Practice.MP8 - Look for and express regularity in repeated reasoning.</p> <p>CCSS.Math.Practice.MP1 - Make sense of problems and persevere in solving them.</p> <p>CCSS.Math.Practice.MP2 - Reason abstractly and quantitatively.</p> | <ul style="list-style-type: none"> Percent of a number Percent and estimations (additional standard) Percent proportion Percent equation | |

October

Enduring Understandings ✕ **Essential Questions** ✕ **Standards** ✕ **Knowledge & Skills** ✕ **Academic Language** ✕

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| Grade 7 Math The Number System | | | | |
| November Enduring Understandings ✕ Essential Questions ✕ Standards ✕ Knowledge & Skills ✕ Academic Language ✕ | | | | |
| <ul style="list-style-type: none"> Rational numbers use the same properties as whole numbers. Rational numbers can be used to represent and solve real life problems. Rational numbers can be represented with visuals (including distance models), language, and real-life contexts. | <ul style="list-style-type: none"> How are rational numbers used and applied in real-life and mathematical situations? What is the relationship between properties of operations and types of numbers? | <p>7.NS.A.1 - Apply and extend previous understandings of operations with fractions ~ Apply and extend previous understandings of addition and subtraction to add and subtract rational numbers; represent addition and subtraction on a horizontal or vertical number line diagram.</p> <p>7.NS.A.2 - Apply and extend previous understandings of operations with fractions ~ Apply and extend previous understandings of multiplication and division and of fractions to multiply and divide rational numbers.</p> | <ul style="list-style-type: none"> Integers - Absolute value Integers - Add, subtract, multiply, and divide integers Integers - Dividing with zero | <ul style="list-style-type: none"> Absolute Value Additive Inverse Integer Negative Integer Opposites |

 A number line model can be used to represent the unique placement of any number in relation to other numbers.

 There are precise terms and sequences to describe operations with rational numbers

7.NS.A.3 - Apply and extend previous understandings of operations with fractions ~ Solve real-world and mathematical problems involving the four operations with rational numbers.

7.NS.A.1a - Apply and extend previous understandings of operations with fractions ~ Describe situations in which opposite quantities combine to make 0.

7.NS.A.1b - Apply and extend previous understandings of operations with fractions ~ 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 - Apply and extend previous understandings of operations with fractions ~ 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 and extend previous understandings of operations with fractions ~ Apply properties of operations as strategies to add and subtract rational numbers.

7.NS.A.2a - Apply and extend previous understandings of operations with fractions ~ 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.2b - Apply and extend previous understandings of operations with fractions ~ 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 and extend previous understandings of operations with fractions ~ Apply properties of operations as strategies to multiply and divide rational numbers.

7.NS.A.2d - Apply and extend previous understandings of operations with fractions ~ Convert a rational number to a

 Rational Numbers - Terminating and repeating decimals

 Rational Numbers - Compare and order rational numbers

 Rational Numbers - Add, subtract, multiply, and divide rational numbers

 Positive Integer

 Zero Pair

 Bar Notation

 *Common Denominator

 *Least Common Denominator

 *Like Fractions

 Rational Numbers

 Repeating Decimal

 Terminating Decimal

 Unlike Fractions

 *Commutative Property

 *Associative Property

 *Factoring

 *Order of Operations

 *Coordinate Grid

 *Expression

 *Ordered Pair

 *Variable

 Borrow, Receive, Deposit, Withdraw

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| | | <p>decimal using long division; know that the decimal form of a rational number terminates in 0s or eventually repeats.</p> <p>CCSS.Math.Practice.MP3 - Construct viable arguments and critique the reasoning of others.</p> <p>CCSS.Math.Practice.MP4 - Model with mathematics.</p> <p>CCSS.Math.Practice.MP5 - Use appropriate tools strategically.</p> <p>CCSS.Math.Practice.MP6 - Attend to precision.</p> <p>CCSS.Math.Practice.MP7 - Look for and make use of structure.</p> <p>CCSS.Math.Practice.MP8 - Look for and express regularity in repeated reasoning.</p> | | |
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| December | <p>Enduring Understandings ✕</p> | <p>Essential Questions ✕</p> | <p>Standards ✕</p> | <p>Knowledge & Skills ✕</p> | <p>Academic Language ✕</p> |
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🏠 Grade 7 Math Expressions and Equations

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| January | <p>Enduring Understandings ✕</p> <p>🏠 Variables can be used to represent numbers in any type of mathematical problem.</p> <p>🏠 Understand the difference between an expression and an equation.</p> <p>🏠 Expressions you simplify and equations you solve for the variable's value.</p> <p>🏠 Write and solve multi - step equations including all rational numbers.</p> <p>🏠 Some equations may have more than one solution and understand inequalities.</p> <p>🏠 Properties of operations allow us to add, subtract, factor, and expand linear expressions.</p> | <p>Essential Questions ✕</p> <p>🏠 How can the order of operations be applied to evaluating expressions, and solving from one-step to multi-step equations?</p> <p>🏠 When and how are expressions, equations, inequalities and graphs applied to real world situations?</p> | <p>Standards ✕</p> <p>7.EE.A.1 - Use properties of operations to generate equivalent expressions ~ Apply properties of operations as strategies to add, subtract, factor, and expand linear expressions with rational coefficients.</p> <p>7.EE.A.2 - Use properties of operations to generate equivalent expressions ~ 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.</p> <p>CCSS.Math.Practice.MP4 - Model with mathematics.</p> <p>CCSS.Math.Practice.MP5 - Use appropriate tools strategically.</p> <p>CCSS.Math.Practice.MP6 - Attend to precision.</p> <p>CCSS.Math.Practice.MP7 - Look for and make use of structure.</p> <p>CCSS.Math.Practice.MP8 - Look for and express regularity in repeated reasoning.</p> | <p>Knowledge & Skills ✕</p> <p>🏠 Algebraic expressions</p> <p>🏠 Properties of operations</p> <p>🏠 Distributive property</p> <p>🏠 Simplifying algebraic expressions</p> <p>🏠 Add and subtract linear expressions</p> | <p>Academic Language ✕</p> <p>🏠 Commutative Property</p> <p>🏠 Associative Property</p> <p>🏠 Multiplicative Property of Zero</p> <p>🏠 Variable Numerical expression</p> <p>🏠 Algebraic expression</p> <p>🏠 Coefficient</p> <p>🏠 Constant</p> <p>🏠 Equation</p> <p>🏠 Evaluate</p> <p>🏠 Combining like</p> |
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| | | | | terms  Inverse operation  Expression  Equivalent  Term  Simplest Form |
| <p> Expressions can be manipulated to suit a particular purpose to solve problems efficiently.</p> <p> Mathematical expressions, equations, inequalities and graphs are used to represent and solve real-world and mathematical problems.</p> <p> Properties, order of operations, and inverse operations are used to simplify expressions and solve equations efficiently.</p> <p> Algebra is applied when solving geometric problems (i.e. circumference and area of a circle).</p> | <p> When and how are expressions, equations, inequalities and graphs applied to real world situations?</p> <p> What are some possible real - life situations to which there may be more than one solution?</p> <p> How does the ongoing use of fractions and decimals apply to real - life situations?</p> | <p>7.EE.B.3 - Solve real-life and mathematical problems using numerical and algebraic expressions and equations ~ Solve multi-step real-life and mathematical problems posed with positive and negative rational numbers in any form (whole numbers, fractions, and decimals), using tools strategically. Apply properties of operations to calculate with numbers in any form; convert between forms as appropriate; and assess the reasonableness of answers using mental computation and estimation strategies.</p> <p>7.EE.B.4 - Solve real-life and mathematical problems using numerical and algebraic expressions and equations ~ Use variables to represent quantities in a real-world or mathematical problem, and construct simple equations and inequalities to solve problems by reasoning about the quantities.</p> <p>7.EE.B.4a - Solve real-life and mathematical problems using numerical and algebraic expressions and equations ~ Solve word problems leading to equations of the form $px + q = r$ and $p(x + q) = r$, where p, q, and r are specific rational numbers. Solve equations of these forms fluently. Compare an algebraic solution to an arithmetic solution, identifying the sequence of the operations used in each approach.</p> <p>7.EE.B.4b - Solve real-life and mathematical problems using numerical and algebraic expressions and equations ~ Solve word problems leading to inequalities of the form $px + q > r$ or $px + q < r$, where p, q, and r are specific rational numbers. Graph the solution set of the inequality and interpret it in the context of the problem.</p> <p>CCSS.Math.Practice.MP1 - Make sense of problems and persevere in solving them.</p> <p>CCSS.Math.Practice.MP2 - Reason abstractly and quantitatively.</p> <p>CCSS.Math.Practice.MP3 - Construct viable arguments and critique the reasoning of others.</p> <p>CCSS.Math.Practice.MP4 - Model with mathematics.</p> | <p> Solve one step addition, subtraction, multiplication, and division equations</p> <p> Solve two step equations</p> <p> Solve one step inequalities</p> <p> Solve two step inequalities</p> | |

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| | | | <p>CCSS.Math.Practice.MP5 - Use appropriate tools strategically.</p> <p>CCSS.Math.Practice.MP6 - Attend to precision.</p> <p>CCSS.Math.Practice.MP7 - Look for and make use of structure.</p> <p>CCSS.Math.Practice.MP8 - Look for and express regularity in repeated reasoning.</p> | | |
| February | <p>Enduring Understandings ✕</p> | <p>Essential Questions ✕</p> | <p>Standards ✕</p> | <p>Knowledge & Skills ✕</p> | <p>Academic Language ✕</p> |
| March | <p>Enduring Understandings ✕</p> | <p>Essential Questions ✕</p> | <p>Standards ✕</p> | <p>Knowledge & Skills ✕</p> | <p>Academic Language ✕</p> |
| April | <p>Grade 7 Math Geometry</p> | | | | |
| | <p>Enduring Understandings ✕</p> | <p>Essential Questions ✕</p> | <p>Standards ✕</p> | <p>Knowledge & Skills ✕</p> | <p>Academic Language ✕</p> |
| | <p>Real world and geometric structures are composed of shapes and spaces with specific properties.</p> <p>Shapes are defined by their properties.</p> <p>Shapes have a purpose for designing structures.</p> <p>Three-dimensional figures have relationships to specific two-dimensional figures.</p> <p>Planes that cut polyhedra create related two-dimensional figures.</p> | <p>How are forms and objects created or represented?</p> <p>How are two-dimensional and three-dimensional space related?</p> <p>How are specific characteristics and a classification system useful in analyzing and designing structures?</p> <p>How does our understanding of geometry help us to describe real-world objects?</p> | <p>7.G.A.1 - Draw construct, and describe geometrical figures and describe the relationships between them ~ 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.</p> <p>7.G.A.2 - Draw construct, and describe geometrical figures and describe the relationships between them ~ 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.</p> <p>7.G.A.3 - Draw construct, and describe geometrical figures and describe the relationships between them ~ Describe the two-dimensional figures that result from slicing three-dimensional figures, as in plane sections of right rectangular prisms and right rectangular pyramids.</p> <p>7.G.B.4 - Solve real-life and mathematical problems involving angle measure, area, surface area, and volume ~ 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.</p> <p>7.G.B.5 - Solve real-life and mathematical problems involving angle measure, area, surface area, and volume</p> | <p>Classify angles</p> <p>Complementary and supplementary angles</p> <p>Triangles</p> <p>Scale drawings</p> <p>Draw three-dimensional figures</p> <p>Cross sections</p> <p>Circumference</p> <p>Area of circles</p> <p>Volume of rectangular and triangular prisms</p> <p>Surface area of rectangular and triangular prisms</p> | <p>Acute Angle</p> <p>Acute Triangle</p> <p>base</p> <p>complementary angles</p> <p>Adjacent angles</p> |

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| | <p>~ 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.</p> <p>7.G.B.6 - Solve real-life and mathematical problems involving angle measure, area, surface area, and volume ~ Solve real-world and mathematical problems involving area, volume and surface area of two- and three-dimensional objects composed of triangles, quadrilaterals, polygons, cubes, and right prisms.</p> <p>CCSS.Math.Practice.MP1 - Make sense of problems and persevere in solving them.</p> <p>CCSS.Math.Practice.MP2 - Reason abstractly and quantitatively.</p> <p>CCSS.Math.Practice.MP3 - Construct viable arguments and critique the reasoning of others.</p> <p>CCSS.Math.Practice.MP4 - Model with mathematics.</p> <p>CCSS.Math.Practice.MP5 - Use appropriate tools strategically.</p> <p>CCSS.Math.Practice.MP6 - Attend to precision.</p> <p>CCSS.Math.Practice.MP7 - Look for and make use of structure.</p> <p>CCSS.Math.Practice.MP8 - Look for and express regularity in repeated reasoning.</p> | <p> Surface area of pyramids</p> <p> Volume and surface area of composite figures</p> | |
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Grade 7 Math Statistics and Probability

| Enduring Understandings | Essential Questions | Standards | Knowledge & Skills | Academic Language |
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| <p> The probability of a chance event is a number between 0 and 1 that expresses the likelihood of the event occurring.</p> <p> The probability of a chance event is approximated by collecting data on the chance process that produces it, observing its long run relative frequency, and predicting the approximate relative frequency given the probability.</p> <p> A probability model, which may or may not be uniform, is used to find</p> | <p> How are probability and the likelihood of an occurrence related and represented?</p> <p> How is probability approximated?</p> <p> How is a probability model used?</p> <p> How are probabilities of compound events determined?</p> | <p>CCSS.Math.Practice.MP1 - Make sense of problems and persevere in solving them.</p> <p>CCSS.Math.Practice.MP2 - Reason abstractly and quantitatively.</p> <p>CCSS.Math.Practice.MP3 - Construct viable arguments and critique the reasoning of others.</p> <p>CCSS.Math.Practice.MP4 - Model with mathematics.</p> <p>CCSS.Math.Practice.MP5 - Use appropriate tools strategically.</p> <p>CCSS.Math.Practice.MP6 - Attend to precision.</p> <p>CCSS.Math.Practice.MP7 - Look for and make use of structure.</p> <p>CCSS.Math.Practice.MP8 - Look for and</p> | <p> Probability of simple events</p> <p> Theoretical and experimental probability</p> <p> Probability of compound events</p> <p> Simulations</p> | <p> Simulation</p> <p> Compound event</p> <p> Probability</p> <p> Sample space</p> <p> Random sample</p> <p> Random</p> <p> Outcome</p> <p> Theoretical probability</p> <p> Experimental probability</p> <p> Relative</p> |

probabilities of events.

 Various tools are used to find probabilities of compound events. (Including organized lists, tables, tree diagrams, and simulations.)

express regularity in repeated reasoning.

7.SP.C.6 - Investigate chance processes and develop, use, and evaluate probability models ~ 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 - Investigate chance processes and develop, use, and evaluate probability models ~ 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.

7.SP.C.8 - Investigate chance processes and develop, use, and evaluate probability models ~ Find probabilities of compound events using organized lists, tables, tree diagrams, and simulation.

7.SP.C.7a - Investigate chance processes and develop, use, and evaluate probability models ~ Develop a uniform probability model by assigning equal probability to all outcomes, and use the model to determine probabilities of events.

7.SP.C.7b - Investigate chance processes and develop, use, and evaluate probability models ~ Develop a probability model (which may not be uniform) by observing frequencies in data generated from a chance process.

7.SP.C.8a - Investigate chance processes and develop, use, and evaluate probability models ~ 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.

7.SP.C.8b - Investigate chance processes and develop, use, and evaluate probability models ~ 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.

7.SP.C.8c - Investigate chance processes and develop, use, and evaluate probability models ~ Design and use a simulation to generate frequencies for compound events.

7.SP.C.5 - Investigate chance processes and develop, use, and evaluate probability models ~ Understand that the probability of a chance event is a number

Frequency

-  Tree diagram
-  Likelihood
-  Counting Principle
-  Uniform probability model
-  Empirical probability
-  Equally likely
-  *More likely
-  *Less likely
-  *Fair
-  *Unfair
-  Simple event
-  *Fraction
-  *Decimal
-  *Percent
-  Combination
-  Permutation
-  Dependent Event
-  Independent Event
-  Complementary
-  Event
-  Fundamental Counting Principle
-  Biased Sample
-  Convenience Sample
-  Double Box Plot
-  Double Dot Plot
-  Population
-  Sample
-  Simple Random Sample

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| | | <p>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.</p> | <ul style="list-style-type: none">  Statistics  Survey  Systematic Random Sample  Unbiased Sample  Voluntary Response Sample |
| <ul style="list-style-type: none">  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.  Random sampling tends to produce representative samples and support valid inferences.  Two data distributions can be compared using visual and numerical representations based upon measures of center and measures of variability to draw conclusions. | <ul style="list-style-type: none">  How can two data distributions be compared?  How can statistics be used to gain information about a sample population?  How can a random sample of a larger population be used to draw inferences? | <p>7.SP.A.1 - Use random sampling to draw inferences about a population ~ 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.</p> <p>7.SP.A.2 - Use random sampling to draw inferences about a population ~ 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.</p> <p>7.SP.B.3 - Draw informal comparative inferences about two populations ~ 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.</p> <p>7.SP.B.4 - Draw informal comparative inferences about two populations ~ Use measures of center and measures of variability for numerical data from random samples to draw informal comparative inferences about two populations.</p> <p>CCSS.Math.Practice.MP1 - Make sense of problems and persevere in solving them.</p> <p>CCSS.Math.Practice.MP2 - Reason abstractly and quantitatively.</p> <p>CCSS.Math.Practice.MP3 - Construct viable arguments and critique the reasoning of others.</p> <p>CCSS.Math.Practice.MP4 - Model with mathematics.</p> <p>CCSS.Math.Practice.MP5 - Use appropriate tools strategically.</p> <p>CCSS.Math.Practice.MP6 - Attend to precision.</p> <p>CCSS.Math.Practice.MP7 - Look for and</p> | <ul style="list-style-type: none">  Make predictions  Biased and unbiased samples  Compared populations |

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| | | | make use of structure. CCSS.Math.Practice.MP8 - Look for and express regularity in repeated reasoning. | | |
| June | Enduring Understandings ✕ | Essential Questions ✕ | Standards ✕ | Knowledge & Skills ✕ | Academic Language ✕ |
| July | Enduring Understandings ✕ | Essential Questions ✕ | Standards ✕ | Knowledge & Skills ✕ | Academic Language ✕ |