Kentucky Tutorials are designed specifically for the Kentucky Academic Standards to prepare students for the K-PREP, EOC exams, ACT, and ACT Plan.

Math Tutorials offer targeted instruction, practice and review designed to develop computational fluency, deepen conceptual understanding, and apply mathematical practices. They automatically identify and address learning gaps down to elementary-level content, using adaptive remediation to bring students to grade-level no matter where they start. Students engage with the content in an interactive, feedback-rich environment as they progress through standards-aligned modules. By constantly honing the ability to apply their knowledge in abstract and real world scenarios, students build the depth of knowledge and higher order skills required to demonstrate their mastery when put to the test.

In each module, the Learn It and Try It make complex ideas accessible to students through focused content, modeled logic and process, multi-modal representations, and personalized feedback as students reason through increasingly challenging problems. The Review It offers a high impact summary of key concepts and relates those concepts to students' lives. The Test It assesses students' mastery of the module's concepts, providing granular performance data to students and teachers after each attempt. To help students focus on the content most relevant to them, unit-level pretests and posttests can quickly identify where students are strong and where they're still learning.

Unit 1: Rate, Ratio, and Proportion

- **UNIT RATES**
  - KY.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.
  - KY.7.RP.2.a: Recognize and represent proportional relationships between quantities. Decide whether two quantities represent a proportional relationship.
- **IDENTIFYING PROPORTIONAL RELATIONSHIPS**
  - KY.7.RP.2.a: Recognize and represent proportional relationships between quantities. Decide whether two quantities represent a proportional relationship.
  - KY.7.RP.2.d: Recognize and represent proportional relationships between quantities. Explain what a point (,) on the graph of a proportional relationship means in terms of the situation, with special attention to the points (0, 0) and (1,) where is the unit rate.
  - KY.7.RP.3.b: Use percents to solve mathematical and real-world problems. Use proportional relationships to solve multistep ratio and percent problems.

Unit 2: Proportional Relationships

- **SOLVING PERCENT PROBLEMS**

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- KY.7.RP.3.a: Use percents to solve mathematical and real-world problems. Find a percent of a quantity as a rate per 100; solve problems involving finding the whole, a part and a percent, given two of these.

- **USING PROPORTIONS TO SOLVE PROBLEMS**
  - KY.7.RP.3.a: Use percents to solve mathematical and real-world problems. Find a percent of a quantity as a rate per 100; solve problems involving finding the whole, a part and a percent, given two of these.
  - KY.7.RP.2.a: Recognize and represent proportional relationships between quantities. Decide whether two quantities represent a proportional relationship.
  - KY.7.RP.3.b: Use percents to solve mathematical and real-world problems. Use proportional relationships to solve multistep ratio and percent problems.

Unit 3: Proportional Reasoning

- **ANALYZING PROPORTIONAL RELATIONSHIPS**
  - KY.7.RP.2.b: Recognize and represent proportional relationships between quantities. Identify the constant of proportionality (unit rate) in tables, graphs, equations, diagrams and verbal descriptions of proportional relationships.
  - KY.7.RP.2.d: Recognize and represent proportional relationships between quantities. Explain what a point (,) on the graph of a proportional relationship means in terms of the situation, with special attention to the points (0, 0) and (1,) where is the unit rate.
  - KY.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.
- **REPRESENTING PROPORTIONAL RELATIONSHIPS**
  - KY.7.RP.2.a: Recognize and represent proportional relationships between quantities. Decide whether two quantities represent a proportional relationship.
  - KY.7.RP.2.d: Recognize and represent proportional relationships between quantities. Explain what a point (,) on the graph of a proportional relationship means in terms of the situation, with special attention to the points (0, 0) and (1,) where is the unit rate.
  - KY.7.RP.3.b: Use percents to solve mathematical and real-world problems. Use proportional relationships to solve multistep ratio and percent problems.
  - KY.7.RP.2.c: Recognize and represent proportional relationships between quantities. Represent proportional relationships by equations.

Unit 4: Addition and Subtraction of Rational Numbers

- **ADDING RATIONAL NUMBERS**
  - KY.7.NS.1.a: 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. Describe situations in which opposite quantities combine to make 0.

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- KY.7.NS.1.b: 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. Understand + as the number located a distance from , in the positive or negative direction depending on whether 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.
- KY.7.NS.1.b: 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. Understand + as the number located a distance from , in the positive or negative direction depending on whether 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.
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- KY.7.NS.3: Solve real-world and mathematical problems involving the four operations with rational numbers.
- KY.7.NS.1.b: 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. Understand + as the number located a distance from , in the positive or negative direction depending on whether 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.
- KY.7.EE.3: Solve real-life and mathematical problems posed with positive and negative rational numbers in any form, 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.
- KY.7.NS.1.b: 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. Understand + as the number located a distance from , in the positive or negative direction depending on whether 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.

- **SUBTRACTING RATIONAL NUMBERS**
  - KY.7.NS.1.a: 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. Describe situations in which opposite quantities combine to make 0.
  - KY.7.NS.1.b: 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. Understand + as the number located a distance from , in the positive or negative direction depending on whether 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.

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- KY.7.NS.1.c: 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. Understand subtraction of rational numbers as adding the additive inverse, = + (). 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.
- KY.7.NS.1.c: 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. Understand subtraction of rational numbers as adding the additive inverse, = + (). 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.
- KY.7.NS.3: Solve real-world and mathematical problems involving the four operations with rational numbers.
- KY.7.NS.1.c: 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. Understand subtraction of rational numbers as adding the additive inverse, = + (). 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.
- KY.7.EE.3: Solve real-life and mathematical problems posed with positive and negative rational numbers in any form, 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.
- KY.7.NS.1.c: 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. Understand subtraction of rational numbers as adding the additive inverse, = + (). 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.

- **USING PROPERTIES TO ADD AND SUBTRACT RATIONAL NUMBERS**
  - KY.7.NS.1.d: 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. Apply properties of operations as strategies to add and subtract rational numbers.
  - KY.7.NS.3: Solve real-world and mathematical problems involving the four operations with rational numbers.
  - KY.7.EE.3: Solve real-life and mathematical problems posed with positive and negative rational numbers in any form, 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.

Unit 5: Multiplication and Division of Rational Numbers

- **MULTIPLYING RATIONAL NUMBERS**

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- KY.7.NS.2.a: Apply and extend previous understandings of multiplication and division and of fractions to multiply and divide rational numbers. 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.
- KY.7.NS.3: Solve real-world and mathematical problems involving the four operations with rational numbers.
- KY.7.NS.2.a: Apply and extend previous understandings of multiplication and division and of fractions to multiply and divide rational numbers. 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.
- KY.7.EE.3: Solve real-life and mathematical problems posed with positive and negative rational numbers in any form, 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.
- KY.7.NS.2.a: Apply and extend previous understandings of multiplication and division and of fractions to multiply and divide rational numbers. 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.
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- **DIVIDING RATIONAL NUMBERS**
  - KY.7.NS.2.b: Apply and extend previous understandings of multiplication and division and of fractions to multiply and divide rational numbers. 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 and

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are integers, then (/) = ()/ = /(). Interpret quotients of rational numbers by describing real-world contexts.

- KY.7.NS.2.b: Apply and extend previous understandings of multiplication and division and of fractions to multiply and divide rational numbers. 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 and are integers, then (/) = ()/ = /(). Interpret quotients of rational numbers by describing real-world contexts.
- KY.7.NS.3: Solve real-world and mathematical problems involving the four operations with rational numbers.
- KY.7.EE.3: Solve real-life and mathematical problems posed with positive and negative rational numbers in any form, 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.
- KY.7.NS.2.b: Apply and extend previous understandings of multiplication and division and of fractions to multiply and divide rational numbers. 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 and are integers, then (/) = ()/ = /(). Interpret quotients of rational numbers by describing real-world contexts.
- KY.7.NS.2.b: Apply and extend previous understandings of multiplication and division and of fractions to multiply and divide rational numbers. 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 and are integers, then (/) = ()/ = /(). Interpret quotients of rational numbers by describing real-world contexts.
- KY.7.NS.2.c: Apply and extend previous understandings of multiplication and division and of fractions to multiply and divide rational numbers. Apply properties of operations as strategies to multiply and divide rational numbers.

Unit 6: Working with Rational Numbers

- **USING PROPERTIES TO MULTIPLY AND DIVIDE RATIONAL NUMBERS**
  - KY.7.NS.2.c: Apply and extend previous understandings of multiplication and division and of fractions to multiply and divide rational numbers. Apply properties of operations as strategies to multiply and divide rational numbers.
  - KY.7.NS.3: Solve real-world and mathematical problems involving the four operations with rational numbers.
  - KY.7.EE.3: Solve real-life and mathematical problems posed with positive and negative rational numbers in any form, 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.
  - KY.7.NS.2.a: Apply and extend previous understandings of multiplication and division and of fractions to multiply and divide rational numbers. Understand that multiplication is extended from fractions to

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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.

- KY.7.NS.2.a: Apply and extend previous understandings of multiplication and division and of fractions to multiply and divide rational numbers. 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.
- KY.7.NS.2.a: Apply and extend previous understandings of multiplication and division and of fractions to multiply and divide rational numbers. 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.
- KY.7.NS.2.a: Apply and extend previous understandings of multiplication and division and of fractions to multiply and divide rational numbers. 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.

- **USING OPERATIONS ON RATIONAL NUMBERS TO SOLVE PROBLEMS**
  - KY.7.NS.1.b: 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. Understand + as the number located a distance from , in the positive or negative direction depending on whether 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.
  - KY.7.NS.1.c: 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. Understand subtraction of rational numbers as adding the additive inverse, = + (). 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.
  - KY.7.NS.2.a: Apply and extend previous understandings of multiplication and division and of fractions to multiply and divide rational numbers. 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.

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- KY.7.NS.3: Solve real-world and mathematical problems involving the four operations with rational numbers.
- KY.7.EE.3: Solve real-life and mathematical problems posed with positive and negative rational numbers in any form, 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.

Unit 7: Algebraic Expressions

- **SIMPLIFYING AND REWRITING ALGEBRAIC EXPRESSIONS**
  - KY.7.EE.1: Apply properties of operations as strategies to add, subtract, factor and expand linear expressions with rational coefficients.
  - KY.7.EE.2: Understand that rewriting an expression in different forms in a problem context can clarify the problem and how the quantities in it are related.
- **SOLVING MULTI-STEP PROBLEMS WITH RATIONAL NUMBERS**
  - KY.7.NS.1.d: 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. Apply properties of operations as strategies to add and subtract rational numbers.
  - KY.7.NS.2.c: Apply and extend previous understandings of multiplication and division and of fractions to multiply and divide rational numbers. Apply properties of operations as strategies to multiply and divide rational numbers.
  - KY.7.NS.3: Solve real-world and mathematical problems involving the four operations with rational numbers.
  - KY.7.EE.3: Solve real-life and mathematical problems posed with positive and negative rational numbers in any form, 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.
  - KY.7.EE.2: Understand that rewriting an expression in different forms in a problem context can clarify the problem and how the quantities in it are related.

Unit 8: Equations and Inequalities

- **SOLVING TWO-STEP EQUATIONS**
  - KY.7.EE.4.a: Use variables to represent quantities in a real-world or mathematical problem and construct equations and inequalities to solve problems by reasoning about the quantities. Solve word problems leading to equations of the form + = and (+) = , where , , and are specific rational numbers. Solve equations of these forms. Graph the solution set of the equality and interpret it in context of the problem.
- **SOLVING LINEAR INEQUALITIES**
  - KY.7.EE.4.b: Use variables to represent quantities in a real-world or mathematical problem and construct equations and inequalities to solve problems by reasoning about the quantities. Solve word

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problems leading to inequalities of the form + , + , + , + ; where , , and are specific rational numbers. Graph the solution set of the inequality and interpret it in context of the problem.

Unit 9: Drawing, Constructing, and Exploring Geometric Figures

- **SCALE DRAWINGS**
  - KY.7.G.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.
- **GEOMETRIC DRAWINGS**
  - KY.7.G.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.
  - KY.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.
- **CROSS-SECTIONS OF GEOMETRIC SOLIDS**
  - KY.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.

Unit 10: Geometry in Two and Three Dimensions

- **CIRCLES**
  - KY.7.G.4.a: Use formulas for area and circumference of circles and their relationships. Apply the formulas for the area and circumference of a circle to solve real-world and mathematical problems.
  - KY.7.G.4.b: Use formulas for area and circumference of circles and their relationships. Explore and understand the relationship between the radius, diameter, circumference and area of a circle.
- **ANGLE RELATIONSHIPS**
  - KY.7.G.5: Apply properties of supplementary, complementary, vertical and adjacent angles in a multi-step problem to write and solve simple equations for an unknown angle in a figure.
- **AREA, VOLUME, AND SURFACE AREA**
  - KY.7.G.6.a: Solve problems involving area of two-dimensional objects and surface area and volume of three-dimensional objects. Solve real-world and mathematical problems involving area of two-dimensional objects composed of triangles, quadrilaterals and other polygons.
  - KY.7.G.6.b: Solve problems involving area of two-dimensional objects and surface area and volume of three-dimensional objects. Solve real-world and mathematical problems involving volume and surface area, using nets as needed, of three-dimensional objects including cubes, pyramids and right prisms.

Unit 11: Statistics and Sampling

- **POPULATIONS AND SAMPLES**
  - KY.7.SP.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

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sample is representative of that population. Understand that random sampling tends to produce representative samples and support valid inferences.

- KY.7.SP.2.a: Use data from a random sample to draw inferences about a population with an unknown characteristic of interest. Generate multiple samples of categorical data of the same size to gauge the variation in estimates or predictions.
- KY.7.SP.2.b: 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 numerical data to gauge the variation in estimates or predictions.
- KY.7.SP.2.c: Use data from a random sample to draw inferences about a population with an unknown characteristic of interest. Gauge how far off an estimate or prediction might be related to a population character of interest.

- **COMPARING DATA SETS VISUALLY**
  - KY.7.SP.3: Describe the degree of visual overlap (and separation) from the graphical representations of two numerical data distributions (box plots, dot plots) with similar variabilities with similar contexts (same variable), measuring the difference between the centers (medians or means) by expressing this difference as a multiple of a measure of variability (interquartile range when comparing medians or the mean absolute deviation when comparing means).
  - KY.7.SP.0: Create displays, including circle graphs (pie charts), scaled pictographs and bar graphs, to compare and analyze distributions of categorical data from both matching and different-sized samples.
  - KY.7.EE.3: Solve real-life and mathematical problems posed with positive and negative rational numbers in any form, 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.
- **USING STATISTICAL MEASURES TO COMPARE DATA SETS**
  - KY.7.SP.2.b: 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 numerical data to gauge the variation in estimates or predictions.
  - KY.7.SP.4: Calculate and use measures of center (mean and median) and measures of variability (interquartile range when comparing medians and mean absolute deviation when comparing means) for numerical data from random samples to draw informal comparative inferences about two populations.
  - KY.7.SP.2.c: Use data from a random sample to draw inferences about a population with an unknown characteristic of interest. Gauge how far off an estimate or prediction might be related to a population character of interest.
  - KY.7.SP.3: Describe the degree of visual overlap (and separation) from the graphical representations of two numerical data distributions (box plots, dot plots) with similar variabilities with similar contexts (same variable), measuring the difference between the centers (medians or means) by expressing this

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difference as a multiple of a measure of variability (interquartile range when comparing medians or the mean absolute deviation when comparing means).

Unit 12: Probability 1

- **PROBABILITY**
  - KY.7.SP.5: Describe the probability of a chance event is a number between 0 and 1, which tells how likely the event is, from impossible (0) to certain (1). 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.
  - KY.7.SP.6: Approximate the probability of a chance event by collecting data on the chance process that produces it and observing its long-run relative frequency and predict the approximate relative frequency given the probability.
  - KY.7.SP.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.
- **CALCULATING PROBABILITY**
  - KY.7.SP.7.a: 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. Develop a uniform probability model by assigning equal probability to all outcomes and use the model to determine probabilities of events. For example:
  - KY.7.SP.8.a: Find probabilities of compound events using organized lists, tables, tree diagrams and simulation. Explain 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. Example:
  - KY.7.SP.6: Approximate the probability of a chance event by collecting data on the chance process that produces it and observing its long-run relative frequency and predict the approximate relative frequency given the probability.
  - KY.7.SP.7.b: 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. Develop a probability model (which may not be uniform) by observing frequencies in data generated from a chance process. For example:

Unit 13: Probability 2

- **PROBABILITY OF COMPOUND EVENTS**
  - KY.7.SP.5: Describe the probability of a chance event is a number between 0 and 1, which tells how likely the event is, from impossible (0) to certain (1). 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.
  - KY.7.SP.8.a: Find probabilities of compound events using organized lists, tables, tree diagrams and simulation. Explain just as with simple events, the probability of a compound event is the fraction of

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outcomes in the sample space for which the compound event occurs. Example:

- KY.7.SP.8.b: Find probabilities of compound events using organized lists, tables, tree diagrams and simulation. Represent sample spaces for compound events described in everyday language using methods such as organized lists, tables and tree diagrams. Example:

- **SIMULATIONS**
  - KY.7.SP.8.a: Find probabilities of compound events using organized lists, tables, tree diagrams and simulation. Explain 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. Example:
  - KY.7.SP.8.c: Find probabilities of compound events using organized lists, tables, tree diagrams and simulation. Design and use a simulation to generate frequencies for compound events. Example:
  - KY.7.SP.5: Describe the probability of a chance event is a number between 0 and 1, which tells how likely the event is, from impossible (0) to certain (1). 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.

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