California Tutorials are designed specifically for the California Common Core State Standards and the California Next Generation Science Standards to prepare students for the Smarter Balanced Assessment Consortium (SBAC) exams and the California Science Tests.

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.

1. POINTS, LINES, AND ANGLES

- **POINTS, RAYS, LINE SEGMENTS, LINES, AND FIGURES**
  - **G-CO.1** *Know precise definitions of angle, circle, perpendicular line, parallel line, and line segment, based on the undefined notions of point, line, distance along a line, and distance around a circular arc.*
  - **G-MG.1** *Use geometric shapes, their measures, and their properties to describe objects (e.g., modeling a tree trunk or a human torso as a cylinder).*

- **PARALLEL AND PERPENDICULAR LINES**
  - **G-CO.1** *Know precise definitions of angle, circle, perpendicular line, parallel line, and line segment, based on the undefined notions of point, line, distance along a line, and distance around a circular arc.*
  - **G-GPE.5** *Prove the slope criteria for parallel and perpendicular lines and use them to solve geometric problems (e.g., find the equation of a line parallel or perpendicular to a given line that passes through a given point).*

- **PARALLEL LINES AND ANGLE RELATIONSHIPS**
  - **G-CO.9** *Prove theorems about lines and angles.*

- **PERPENDICULAR BISECTOR AND ANGLE BISECTOR THEOREMS**
  - **G-CO.9** *Prove theorems about lines and angles.*
  - **G-CO.10** *Prove theorems about triangles.*
  - **G-SRT.4** *Prove theorems about triangles.*

2. COORDINATE GEOMETRY

- **SLOPE-INTERCEPT FORM OF A LINEAR EQUATION**
  - **G-GPE.5** *Prove the slope criteria for parallel and perpendicular lines and use them to solve geometric problems (e.g., find the equation of a line parallel or perpendicular to a given line that passes through a given point).*

- **LENGTH AND THE DISTANCE FORMULA**

- **G-MG.1** *Use geometric shapes, their measures, and their properties to describe objects (e.g., modeling a tree trunk or a human torso as a cylinder).*
- **G-GPE.6** *Find the point on a directed line segment between two given points that partitions the segment in a given ratio.*
- **G-GPE.7** *Use coordinates to compute perimeters of polygons and areas of triangles and rectangles, e.g., using the distance formula.*

MIDPOINT FORMULA ON THE COORDINATE PLANE

- **G-GPE.6** *Find the point on a directed line segment between two given points that partitions the segment in a given ratio.*
- **G-MG.1** *Use geometric shapes, their measures, and their properties to describe objects (e.g., modeling a tree trunk or a human torso as a cylinder).*

CONJECTURES IN COORDINATE GEOMETRY

- **G-CO.10** *Prove theorems about triangles.*
- **G-GPE.4** *Use coordinates to prove simple geometric theorems algebraically.*

3. PERIMETER, AREA, AND TRANSFORMATIONS ON THE COORDINATE PLANE

PERIMETER ON THE COORDINATE PLANE

- **G-GPE.7** *Use coordinates to compute perimeters of polygons and areas of triangles and rectangles, e.g., using the distance formula.*
- **G-MG.1** *Use geometric shapes, their measures, and their properties to describe objects (e.g., modeling a tree trunk or a human torso as a cylinder).*
- **G-GPE.4** *Use coordinates to prove simple geometric theorems algebraically.*

AREA ON THE COORDINATE PLANE

- **G-GPE.7** *Use coordinates to compute perimeters of polygons and areas of triangles and rectangles, e.g., using the distance formula.*
- **G-MG.1** *Use geometric shapes, their measures, and their properties to describe objects (e.g., modeling a tree trunk or a human torso as a cylinder).*

TRANSFORMATIONS ON THE COORDINATE PLANE

- **G-CO.2** *Represent transformations in the plane using, e.g., transparencies and geometry software; describe transformations as functions that take points in the plane as inputs and give other points as outputs. Compare transformations that preserve distance and angle to those that do not (e.g., translation versus horizontal stretch).*
- **G-CO.3** *Given a rectangle, parallelogram, trapezoid, or regular polygon, describe the rotations and reflections that carry it onto itself.*
- **G-CO.5** *Given a geometric figure and a rotation, reflection, or translation, draw the transformed figure using, e.g., graph paper, tracing paper, or geometry software. Specify a sequence of transformations that will carry a given figure onto another.*
- **G-CO.6** *Use geometric descriptions of rigid motions to transform figures and to predict the effect of a given rigid motion on a given figure; given two figures, use the definition of congruence in terms of rigid motions to decide if they are congruent.*
- **G-SRT.1.a** *A dilation takes a line not passing through the center of the dilation to a parallel line, and leaves a line passing through the center unchanged.*
- **G-SRT.2** *Given two figures, use the definition of similarity in terms of similarity transformations to decide if they are similar; explain using similarity transformations the meaning of similarity for triangles as the equality of all corresponding pairs of angles and the proportionality of all corresponding pairs of sides.*
- **G-CO.4** *Develop definitions of rotations, reflections, and translations in terms of angles, circles, perpendicular lines, parallel lines, and line segments.*
- **G-SRT.1.b** *The dilation of a line segment is longer or shorter in the ratio given by the scale factor.*

DILATIONS, TRANSLATIONS, ROTATIONS, AND REFLECTIONS

- **G-CO.3** *Given a rectangle, parallelogram, trapezoid, or regular polygon, describe the rotations and reflections that carry it onto itself.*
- **G-CO.5** *Given a geometric figure and a rotation, reflection, or translation, draw the transformed figure using, e.g., graph*

paper, tracing paper, or geometry software. Specify a sequence of transformations that will carry a given figure onto another.

- **G-CO.6** *Use geometric descriptions of rigid motions to transform figures and to predict the effect of a given rigid motion on a given figure; given two figures, use the definition of congruence in terms of rigid motions to decide if they are congruent.*
- **G-CO.2** *Represent transformations in the plane using, e.g., transparencies and geometry software; describe transformations as functions that take points in the plane as inputs and give other points as outputs. Compare transformations that preserve distance and angle to those that do not (e.g., translation versus horizontal stretch).*
- **G-CO.4** *Develop definitions of rotations, reflections, and translations in terms of angles, circles, perpendicular lines, parallel lines, and line segments.*
- **G-SRT.1.a** *A dilation takes a line not passing through the center of the dilation to a parallel line, and leaves a line passing through the center unchanged.*
- **G-SRT.1.b** *The dilation of a line segment is longer or shorter in the ratio given by the scale factor.*
- **G-SRT.2** *Given two figures, use the definition of similarity in terms of similarity transformations to decide if they are similar; explain using similarity transformations the meaning of similarity for triangles as the equality of all corresponding pairs of angles and the proportionality of all corresponding pairs of sides.*

4. CONGRUENCE AND SIMILARITY

- **TRIANGLES AND CONGRUENCE TRANSFORMATIONS**
  - **G-CO.6** *Use geometric descriptions of rigid motions to transform figures and to predict the effect of a given rigid motion on a given figure; given two figures, use the definition of congruence in terms of rigid motions to decide if they are congruent.*
  - **G-CO.7** *Use the definition of congruence in terms of rigid motions to show that two triangles are congruent if and only if corresponding pairs of sides and corresponding pairs of angles are congruent.*
  - **G-CO.8** *Explain how the criteria for triangle congruence (ASA, SAS, and SSS) follow from the definition of congruence in terms of rigid motions.*
  - **G-SRT.4** *Prove theorems about triangles.*
  - **G-SRT.5** *Use congruence and similarity criteria for triangles to solve problems and to prove relationships in geometric figures.*
  - **G-CO.10** *Prove theorems about triangles.*

- **TRIANGLES AND SIMILARITY TRANSFORMATIONS**
  - **G-SRT.2** *Given two figures, use the definition of similarity in terms of similarity transformations to decide if they are similar; explain using similarity transformations the meaning of similarity for triangles as the equality of all corresponding pairs of angles and the proportionality of all corresponding pairs of sides.*
  - **G-SRT.5** *Use congruence and similarity criteria for triangles to solve problems and to prove relationships in geometric figures.*
  - **G-SRT.4** *Prove theorems about triangles.*
  - **G-CO.10** *Prove theorems about triangles.*
  - **G-SRT.3** *Use the properties of similarity transformations to establish the AA criterion for two triangles to be similar.*

- **CONGRUENCE OF OTHER POLYGONS**
  - **G-MG.1** *Use geometric shapes, their measures, and their properties to describe objects (e.g., modeling a tree trunk or a human torso as a cylinder).*
  - **G-CO.6** *Use geometric descriptions of rigid motions to transform figures and to predict the effect of a given rigid motion on a given figure; given two figures, use the definition of congruence in terms of rigid motions to decide if they are congruent.*
  - **G-CO.2** *Represent transformations in the plane using, e.g., transparencies and geometry software; describe transformations as functions that take points in the plane as inputs and give other points as outputs. Compare transformations that preserve distance and angle to those that do not (e.g., translation versus horizontal stretch).*
  - **G-CO.5** *Given a geometric figure and a rotation, reflection, or translation, draw the transformed figure using, e.g., graph paper, tracing paper, or geometry software. Specify a sequence of transformations that will carry a given figure onto another.*
  - **G-CO.3** *Given a rectangle, parallelogram, trapezoid, or regular polygon, describe the rotations and reflections that carry it onto itself.*

- **SIMILARITY OF OTHER POLYGONS**
  - **G-SRT.2** *Given two figures, use the definition of similarity in terms of similarity transformations to decide if they are similar; explain using similarity transformations the meaning of similarity for triangles as the equality of all corresponding pairs of*

angles and the proportionality of all corresponding pairs of sides.

5. TRIANGLES

- **CLASSIFYING TRIANGLES**
  - **G-CO.10** *Prove theorems about triangles.*
  - **G-MG.1** *Use geometric shapes, their measures, and their properties to describe objects (e.g., modeling a tree trunk or a human torso as a cylinder).*
  - **G-GMD.6.** *Verify experimentally that in a triangle, angles opposite longer sides are larger, sides opposite larger angles are longer, and the sum of any two side lengths is greater than the remaining side length; apply these relationships to solve real-world and mathematical problems.*
  - **G-SRT.4** *Prove theorems about triangles.*

- **TRIANGLE ANGLE THEOREMS**
  - **G-CO.10** *Prove theorems about triangles.*
  - **G-SRT.4** *Prove theorems about triangles.*

- **TRIANGLE BISECTORS**
  - **G-CO.9** *Prove theorems about lines and angles.*
  - **G-CO.10** *Prove theorems about triangles.*
  - **G-SRT.4** *Prove theorems about triangles.*
  - **G-SRT.5** *Use congruence and similarity criteria for triangles to solve problems and to prove relationships in geometric figures.*
  - **G-CO.12** *Make formal geometric constructions with a variety of tools and methods (compass and straightedge, string, reflective devices, paper folding, dynamic geometric software, etc.).*
  - **G-C.3** *Construct the inscribed and circumscribed circles of a triangle, and prove properties of angles for a quadrilateral inscribed in a circle.*

- **MEDIANS AND ALTITUDES OF TRIANGLES**
  - **G-CO.10** *Prove theorems about triangles.*
  - **G-SRT.4** *Prove theorems about triangles.*

6. QUADRILATERALS AND CONSTRUCTIONS

- **PARALLELOGRAMS AND RECTANGLES**
  - **G-CO.11** *Prove theorems about parallelograms.*
  - **G-MG.1** *Use geometric shapes, their measures, and their properties to describe objects (e.g., modeling a tree trunk or a human torso as a cylinder).*

- **SQUARES AND RHOMBI**
  - **G-CO.11** *Prove theorems about parallelograms.*
  - **G-MG.1** *Use geometric shapes, their measures, and their properties to describe objects (e.g., modeling a tree trunk or a human torso as a cylinder).*

- **CONSTRUCTIONS**
  - **G-CO.12** *Make formal geometric constructions with a variety of tools and methods (compass and straightedge, string, reflective devices, paper folding, dynamic geometric software, etc.).*
  - **G-CO.13** *Construct an equilateral triangle, a square, and a regular hexagon inscribed in a circle.*
  - **G-C.4** *Construct a tangent line from a point outside a given circle to the circle.*

7. TRIANGLES AND TRIGONOMETRY

- **PYTHAGOREAN THEOREM**
  - **G-CO.10** *Prove theorems about triangles.*
  - **G-SRT.8** *Use trigonometric ratios and the Pythagorean Theorem to solve right triangles in applied problems.*
  - **G-MG.1** *Use geometric shapes, their measures, and their properties to describe objects (e.g., modeling a tree trunk or a human torso as a cylinder).*
  - **G-SRT.4** *Prove theorems about triangles.*
  - **G-SRT.5** *Use congruence and similarity criteria for triangles to solve problems and to prove relationships in geometric figures.*

- **TRIGONOMETRIC RATIOS**
  - **G-SRT.6** *Understand that by similarity, side ratios in right triangles are properties of the angles in the triangle, leading to definitions of trigonometric ratios for acute angles.*
  - **G-SRT.8** *Use trigonometric ratios and the Pythagorean Theorem to solve right triangles in applied problems.*
  - **G-SRT.8.1** *Derive and use the trigonometric ratios for special right triangles (30°,60°,90°and 45°,45°,90°).*
  - **G-SRT.7** *Explain and use the relationship between the sine and cosine of complementary angles.*
  - **G-MG.1** *Use geometric shapes, their measures, and their properties to describe objects (e.g., modeling a tree trunk or a human torso as a cylinder).*

- **LAWS OF SINE AND COSINE**
  - **G-SRT.9** *Derive the formula $A = 1/2\ ab\ \sin(C)$ for the area of a triangle by drawing an auxiliary line from a vertex perpendicular to the opposite side.*
  - **G-SRT.10** *Prove the Laws of Sines and Cosines and use them to solve problems.*
  - **G-SRT.11** *Understand and apply the Law of Sines and the Law of Cosines to find unknown measurements in right and non-right triangles (e.g., surveying problems, resultant forces).*
  - **G-SRT.8** *Use trigonometric ratios and the Pythagorean Theorem to solve right triangles in applied problems.*

- **RADIANS AND THE UNIT CIRCLE**
  - **G-C.5** *Derive using similarity the fact that the length of the arc intercepted by an angle is proportional to the radius, and define the radian measure of the angle as the constant of proportionality; derive the formula for the area of a sector. Convert between degrees and radians.*
  - **G-SRT.8** *Use trigonometric ratios and the Pythagorean Theorem to solve right triangles in applied problems.*
  - **G-SRT.8.1** *Derive and use the trigonometric ratios for special right triangles (30°,60°,90°and 45°,45°,90°).*

8. CIRCLES

- **CIRCLE BASICS**
  - **G-C.2** *Identify and describe relationships among inscribed angles, radii, and chords.*
  - **G-CO.1** *Know precise definitions of angle, circle, perpendicular line, parallel line, and line segment, based on the undefined notions of point, line, distance along a line, and distance around a circular arc.*

- **CENTRAL ANGLES, INSCRIBED ANGLES, AND CHORDS**
  - **G-CO.9** *Prove theorems about lines and angles.*
  - **G-C.2** *Identify and describe relationships among inscribed angles, radii, and chords.*
  - **G-C.3** *Construct the inscribed and circumscribed circles of a triangle, and prove properties of angles for a quadrilateral inscribed in a circle.*
  - **G-CO.1** *Know precise definitions of angle, circle, perpendicular line, parallel line, and line segment, based on the undefined notions of point, line, distance along a line, and distance around a circular arc.*

- **SECANTS, ANGLES, AND INTERCEPTED ARCS**
  - **G-CO.9** *Prove theorems about lines and angles.*
  - **G-C.2** *Identify and describe relationships among inscribed angles, radii, and chords.*

- **TANGENTS, ANGLES, AND INTERCEPTED ARCS**
  - **G-CO.9** *Prove theorems about lines and angles.*
  - **G-C.2** *Identify and describe relationships among inscribed angles, radii, and chords.*

9. PROPERTIES OF CIRCLES

- **CONGRUENT AND SIMILAR CIRCLES**
  - **G-CO.1** *Know precise definitions of angle, circle, perpendicular line, parallel line, and line segment, based on the undefined notions of point, line, distance along a line, and distance around a circular arc.*
  - **G-CO.6** *Use geometric descriptions of rigid motions to transform figures and to predict the effect of a given rigid motion on a given figure; given two figures, use the definition of congruence in terms of rigid motions to decide if they are congruent.*
  - **G-C.1** *Prove that all circles are similar.*
  - **G-CO.4** *Develop definitions of rotations, reflections, and translations in terms of angles, circles, perpendicular lines, parallel lines, and line segments.*
  - **G-SRT.2** *Given two figures, use the definition of similarity in terms of similarity transformations to decide if they are similar; explain using similarity transformations the meaning of similarity for triangles as the equality of all corresponding pairs of angles and the proportionality of all corresponding pairs of sides.*

- **CIRCUMFERENCE AND ARC LENGTH**
  - **G-CO.1** *Know precise definitions of angle, circle, perpendicular line, parallel line, and line segment, based on the undefined notions of point, line, distance along a line, and distance around a circular arc.*
  - **G-GMD.1** *Give an informal argument for the formulas for the circumference of a circle, area of a circle, volume of a cylinder, pyramid, and cone.*
  - **G-MG.1** *Use geometric shapes, their measures, and their properties to describe objects (e.g., modeling a tree trunk or a human torso as a cylinder).*

- **AREA OF CIRCLES AND SECTORS**
  - **G-GMD.1** *Give an informal argument for the formulas for the circumference of a circle, area of a circle, volume of a cylinder, pyramid, and cone.*
  - **G-MG.1** *Use geometric shapes, their measures, and their properties to describe objects (e.g., modeling a tree trunk or a human torso as a cylinder).*
  - **G-CO.1** *Know precise definitions of angle, circle, perpendicular line, parallel line, and line segment, based on the undefined notions of point, line, distance along a line, and distance around a circular arc.*
  - **G-C.5** *Derive using similarity the fact that the length of the arc intercepted by an angle is proportional to the radius, and define the radian measure of the angle as the constant of proportionality; derive the formula for the area of a sector. Convert between degrees and radians.*

10. CONIC SECTIONS

- **CIRCLES**
  - **G-GPE.1** *Derive the equation of a circle of given center and radius using the Pythagorean Theorem; complete the square to find the center and radius of a circle given by an equation.*

- **PARABOLAS**
  - **G-GPE.2** *Derive the equation of a parabola given a focus and directrix.*

11. SURFACE AREA

- **SURFACE AREA AND VOLUME OF SPHERES**
  - **G-GMD.4** *Identify the shapes of two-dimensional cross-sections of three-dimensional objects, and identify three-dimensional objects generated by rotations of two-dimensional objects.*
  - **G-MG.1** *Use geometric shapes, their measures, and their properties to describe objects (e.g., modeling a tree trunk or a human torso as a cylinder).*
  - **G-GMD.3** *Use volume formulas for cylinders, pyramids, cones, and spheres to solve problems.*

- **SURFACE AREA OF COMPOSITE SOLIDS**
  - **G-MG.1** *Use geometric shapes, their measures, and their properties to describe objects (e.g., modeling a tree trunk or a human torso as a cylinder).*

- **SURFACE AREA OF SIMILAR SOLIDS**
  - **G-MG.1** *Use geometric shapes, their measures, and their properties to describe objects (e.g., modeling a tree trunk or a human torso as a cylinder).*
  - **G-GMD.5** *Know that the effect of a scale factor k greater than zero on length, area, and volume is to multiply each by k, k^2, and k^3, respectively; determine length, area and volume measures using scale factors.*

12. VOLUME

- **CONVERTING BETWEEN TWO-DIMENSIONAL FIGURES AND THREE-DIMENSIONAL SOLIDS**
  - **G-GMD.4** *Identify the shapes of two-dimensional cross-sections of three-dimensional objects, and identify three-dimensional objects generated by rotations of two-dimensional objects.*

- **VOLUME OF PRISMS AND PYRAMIDS**
  - **G-GMD.4** *Identify the shapes of two-dimensional cross-sections of three-dimensional objects, and identify three-dimensional objects generated by rotations of two-dimensional objects.*
  - **G-MG.1** *Use geometric shapes, their measures, and their properties to describe objects (e.g., modeling a tree trunk or a human torso as a cylinder).*
  - **G-GMD.1** *Give an informal argument for the formulas for the circumference of a circle, area of a circle, volume of a cylinder, pyramid, and cone.*
  - **G-GMD.3** *Use volume formulas for cylinders, pyramids, cones, and spheres to solve problems.*

- **VOLUME OF CYLINDERS AND CONES**
  - **G-GMD.1** *Give an informal argument for the formulas for the circumference of a circle, area of a circle, volume of a cylinder, pyramid, and cone.*
  - **G-GMD.3** *Use volume formulas for cylinders, pyramids, cones, and spheres to solve problems.*
  - **G-GMD.4** *Identify the shapes of two-dimensional cross-sections of three-dimensional objects, and identify three-dimensional objects generated by rotations of two-dimensional objects.*
  - **G-MG.1** *Use geometric shapes, their measures, and their properties to describe objects (e.g., modeling a tree trunk or a human torso as a cylinder).*

- **MODELING SITUATIONS WITH GEOMETRY**
  - **G-MG.2** *Apply concepts of density based on area and volume in modeling situations (e.g., persons per square mile, BTUs per cubic foot).*
  - **G-MG.3** *Apply geometric methods to solve design problems (e.g., designing an object or structure to satisfy physical constraints or minimize cost; working with typographic grid systems based on ratios).*

13. VOLUME OF SIMILAR AND COMPOSITE SHAPES

- **VOLUME OF COMPOSITE SOLIDS**
  - **G-MG.1** *Use geometric shapes, their measures, and their properties to describe objects (e.g., modeling a tree trunk or a human torso as a cylinder).*
  - **G-GMD.3** *Use volume formulas for cylinders, pyramids, cones, and spheres to solve problems.*

- **VOLUME OF SIMILAR SOLIDS**
  - **G-GMD.3** *Use volume formulas for cylinders, pyramids, cones, and spheres to solve problems.*
  - **G-MG.1** *Use geometric shapes, their measures, and their properties to describe objects (e.g., modeling a tree trunk or a human torso as a cylinder).*

- **G-GMD.5** *Know that the effect of a scale factor k greater than zero on length, area, and volume is to multiply each by k, k^2, and k^3, respectively; determine length, area and volume measures using scale factors.*

- **EFFECTS OF CHANGING DIMENSIONS ON PERIMETER, AREA, AND VOLUME**
  - **G-GMD.5** *Know that the effect of a scale factor k greater than zero on length, area, and volume is to multiply each by k, k^2, and k^3, respectively; determine length, area and volume measures using scale factors.*
  - **G-MG.1** *Use geometric shapes, their measures, and their properties to describe objects (e.g., modeling a tree trunk or a human torso as a cylinder).*

14. BASIC PROBABILITY CONCEPTS

- **INTRODUCTION TO PROBABILITY**
  - **S-CP.2** *Understand that two events A and B are independent if the probability of A and B occurring together is the product of their probabilities, and use this characterization to determine if they are independent.*
  - **S-CP.8** *Apply the general Multiplication Rule in a uniform probability model, P(A and B) = P(A)P(B|A) = P(B)P(A|B), and interpret the answer in terms of the model.*
  - **S-CP.1** *Describe events as subsets of a sample space (the set of outcomes) using characteristics (or categories) of the outcomes, or as unions, intersections, or complements of other events ("or," "and," "not").*
  - **S-CP.7** *Apply the Addition Rule, P(A or B) = P(A) + P(B) – P(A and B), and interpret the answer in terms of the model.*

- **COMBINATIONS AND PERMUTATIONS**
  - **S-CP.9** *Use permutations and combinations to compute probabilities of compound events and solve problems.*

15. ADVANCED PROBABILITY CONCEPTS

- **CONDITIONAL PROBABILITY**
  - **S-CP.3** *Understand the conditional probability of A given B as P(A and B)/P(B), and interpret independence of A and B as saying that the conditional probability of A given B is the same as the probability of A, and the conditional probability of given A is the same as the probability of B.*
  - **S-CP.5** *Recognize and explain the concepts of conditional probability and independence in everyday language and everyday situations.*
  - **S-CP.6** *Find the conditional probability of A given B as the fraction of B's outcomes that also belong to A, and interpret the answer in terms of the model.*
  - **S-CP.2** *Understand that two events A and B are independent if the probability of A and B occurring together is the product of their probabilities, and use this characterization to determine if they are independent.*
  - **S-CP.4** *Construct and interpret two-way frequency tables of data when two categories are associated with each object being classified. Use the two-way table as a sample space to decide if events are independent and to approximate conditional probabilities.*

- **GEOMETRIC PROBABILITIES**
  - **S-CP.1** *Describe events as subsets of a sample space (the set of outcomes) using characteristics (or categories) of the outcomes, or as unions, intersections, or complements of other events ("or," "and," "not").*
  - **S-MD.7** *Analyze decisions and strategies using probability concepts (e.g., product testing, medical testing, pulling a hockey goalie at the end of a game).*
  - **S-CP.7** *Apply the Addition Rule, P(A or B) = P(A) + P(B) – P(A and B), and interpret the answer in terms of the model.*

- **ANALYZING DECISIONS IN PROBABILITY**
  - **S-MD.6** *Use probabilities to make fair decisions (e.g., drawing by lots, using a random number generator).*
  - **S-MD.7** *Analyze decisions and strategies using probability concepts (e.g., product testing, medical testing, pulling a hockey goalie at the end of a game).*