Grade: Typically 10th Grade Course
Course: Geometry
Year: 2018-2019

LAKEWOOD CITY SCHOOLS

Mission Statement

In partnership with our families and community, Lakewood City Schools will develop responsible citizens, who are critical and creative thinkers, committed to life-long learning, invested in a diverse society, and prepared for technological and global opportunities.

Thinking Skills - The student demonstrates:

1. Critical Thinking Skills include the ability to analyze, criticize, advocate ideas, reason inductively and deductively, and to reach factual and judgemental conclusions.
2. Creative Problem Solving by identifying and analyzing a problem, thinking divergently and evaluating the implementation of possible solutions.
3. Research skills by compiling, evaluating and presenting data.
4. Communication Skills

Suggested Pacing	Content Standards	Learning and Performance Expectations	Learning Resources Options	Vocabulary
Experiment with transformations in the plane Assessment of Learning Options: Formative and Summative Assessments In paper pencil and online testing.				
EXPERIMENT WITH TRANSFORMATIONS IN THE COORDINATE PLANE	**G.CO.1:** Know precise definitions of ray, angle, circle, perpendicular line, parallel line, and line segment, based on the undefined motions of point, line, distance along a line, and arc length.	I can identify the undefined notions used in geometry (point, line, plane, distance) and describe their characteristics. I can identify angles, circles, perpendicular lines, parallel lines, rays, and line segments. I can define angles, circles, perpendicular lines, parallel lines, rays, and line segments precisely using the undefined terms and "if-then" and "if-and-only-if" statements.	GEOGEBRA GEOMETRY DESMOS CALCULATOR Edulastic practice and assessments Unit 1 review: Desmos activity	Point Line Plane Distance Angle Circle Perpendicular Lines Parallel Lines Line segment Arc Ray Vertex Equidistant Intersect Right angle

		I can apply indirect reasoning in a proof.		
	G.CO.2: Represent transformations in the plane using, e.g., transparencies and geometry software; describe transformations as functions that take points in the plan as inputs and give other point as output. Compare transformations that preserve distance and angle to those that do not (e.g., translation versus horizontal stretch).	I can draw transformations of reflections, rotations, translations, and combinations of these using graph paper, transparencies, and/or geometry software. I can determine the coordinates for the image (output) of a figure when a transformation rule is applied to the preimage (input). I can distinguish between transformations that are rigid (preserve distance and angle measure – reflections, rotations, translations, or combinations of these) and those that are not (dilations or rigid motions followed by dilations). I can describe a translation with a vector. I can apply transformations to functions.		Transformation Reflection Rotation Translation Dilation Image Preimage Rigid motion Input Output Coordinates Distance Angle measure
	G.CO.3: Identify the symmetries of a figure, which are the rotations and reflections that carry it onto itself.	I can describe and illustrate how a rectangle, parallelogram, isosceles trapezoid, etc. is mapped onto itself using transformations.		Rectangle Parallelogram

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	a. Identify figures that have line symmetry; draw and use lines of symmetry to analyze properties of shapes. b. Identify figures that have rotational symmetry; determine the angle of rotation, and use rotational symmetry to analyze properties of shapes.	I can calculate the number of lines of reflectional symmetry of any regular polygon. I can calculate the degree of rotational symmetry of any regular polygon.		Trapezoid Isosceles Trapezoid Regular Polygon Rotational Symmetry Reflectional Symmetry Mapped Onto
	G.CO.4: Develop definitions of rotations, reflections, and translations in terms of angles, circles, perpendicular lines, parallel lines, and line segments.	I can construct the reflection definition by connecting any point on the preimage to its corresponding point on the reflected image and describing the line segment's relationship to the line of reflection (e.g. the line of reflection is the perpendicular bisector of the segment.) I can construct the translation definition by connecting any point on the preimage to its corresponding point on the translated image, and describing how the two segments are are equal in length, point in the same direction, and are parallel. I can construct the rotation definition by connecting the center of rotation to any point on		Rotation Reflection Translation Perpendicular Bisector Line Segment Preimage Image Parallel Lines Angle Center of Rotation

		the preimage and to its corresponding point on the rotated image, and describing the measure of the angle formed and the equal measures of the segments that formed the angle as part of the definition.		
	G.CO. 5: Given a geometric figure and a rotation, reflection, or translation, draw the transformed figure using items such as graph paper, tracing paper, or geometry software. Specify a sequence of transformations that will carry a given figure onto another.	I can draw specific transformations when given a geometric figure and a rotation, reflection, or translation. I can predict and verify the sequence of transformations (a composition) that will map a figure onto another.		Reflection Rotation Translation Figure Map Transformation Composition
UNDERSTAND CONGRUENCE IN TERMS OF RIGID MOTIONS	**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.	I can define rigid motions as reflections, rotations, translations, and combinations of these, all of which preserve distance and angle measure. I can define congruent figures as figures that have the same shape and size.	SPECIAL ANGLE PAIRS DESMOS ACTIVITY Quizizz on congruence Statements CK 12 activity on congruent triangles	Congruence Composition Rigid Motions Map Reflection

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		I can state that a composition of rigid motions will map one congruent figure onto the other. I can predict a composition of transformations that will map a figure onto a congruent figure. I can determine if two figures are congruent by determining if a sequence of rigid motions will turn one figure into the other.	Kahoot: proving triangles congruent Complementary and Supplementary special angle pairs quizizz	Rotation Translation Transformation Angle Measure Distance
	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.	I can identify corresponding sides and corresponding angles of congruent triangles. I can explain that in a pair of congruent triangles, corresponding sides are congruent (distance is preserved) and corresponding angles are congruent (angle measure is preserved). I can demonstrate that when distance is preserved (corresponding sides are congruent) and angle measure is preserved (corresponding angles are congruent) the triangles must also be congruent.		Rigid Motions Reflection Rotation Translation Distance Angle Measure Congruent Composition Map Figure

				Corresponding Angles Corresponding Sides
	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.	I can define rigid motions as reflections, rotations, translations and combinations of these, all of which preserve distance and angle measure. I can list the sufficient conditions to prove triangles are congruent. I can map a triangle with one of the sufficient conditions (e.g. SSS) onto the original triangle and show that corresponding sides and corresponding angles are congruent.		Rigid Motion Reflection Rotation Translation Congruent Composition
PROVE GEOMETRIC THEOREMS BOTH FORMALLY AND INFORMALLY USING A VARIETY OF METHODS	**G.CO.9:** Prove and apply theorems about lines and angles. Theorems include but are not restricted to the following: vertical angles are congruent; when a transversal crosses parallel lines, alternate interior angles are congruent and corresponding angles are congruent; points on a perpendicular bisector of a line segment are exactly those	I can identify and use the properties of congruence and equality (reflexive, symmetric, transitive) in my proofs. I can order statements based on the Law of Syllogism when constructing proofs. I can correctly interpret geometric diagrams by identifying what can and cannot be assumed.	Quizizz: Similar Figures Quizizz: Dilations	Theorem Linear Pair Vertical Angles Alternate Interior Angles Alternate Exterior Angles Same-side (Consecutive) Interior Angles

	equidistant from the segment's endpoints.	I can use theorems, postulates, or definitions to prove theorems about lines and angles, including: a. Vertical angles are congruent; b. When a transversal crosses parallel lines, alternate interior angles are congruent, corresponding angles are congruent and same-side interior angles are supplementary; c. Points on a perpendicular bisector of a line segment are exactly those equidistant from the segment's endpoints.		Corresponding Sides Perpendicular Bisector Supplementary Angles Complementary Angles Equidistant Congruent Adjacent Consecutive/non-consecutive Reflection Law of Syllogism
	G.CO.10: Prove and apply theorems about triangles. Theorems include but are not restricted to the following: measures of interior angles of a triangle sum to 180°; base angles of isosceles triangles are congruent; the segment joining midpoints of two sides of a triangle is parallel to the third side and half.	I can order statements based on the Law of Syllogism when constructing proofs. I can correctly interpret geometric diagrams by identifying what can and cannot be assumed. I can use theorems, postulates, or definitions to prove theorems about triangles including: a. Measures of interior		Midpoint Midsection Isosceles Triangle Median Centroid Coordinate Proof

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		angles of a triangle sum to 180 degrees; b. Base angles of isosceles triangles are congruent; c. The segment joining midpoints of two sides of a triangle is parallel to the third side and half the length; d. The medians of a triangle meet at a point.		Adjacent Consecutive/non-consecutive Law of Syllogism
SIMILARITY	**G.SRT.1:** Verify experimentally the properties of dilations given by a center and a scale factor: 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. b. The dilation of a line segment is longer or shorter in the ratio given by the scale factor.	I can define dilation. I can perform a dilation with a given center and scale factor on a figure in the coordinate plane. I can verify that when a side passes through the center of a dilation, the side and its image lie on the same line. I can dilate a line. I can verify that corresponding sides of the preimage and image are parallel. I can verify that a side length of the image is equal to the scale factor multiplied by the		Dilation Center Scale Factor Image Slope Parallel Corresponding Sides Preimage Distance Segment

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		corresponding side length of the preimage.		Ratio
	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.	I can define similarity as a composition of rigid motions followed by dilations in which angle measure is preserved and side length is proportional. I can identify corresponding sides and corresponding angles of similar triangles. I can demonstrate that in a pair of similar triangles, corresponding angles are congruent (angle measure is preserved) and corresponding sides are proportional.		Similarity Composition Rigid Motion Dilation Angle Measure Side Length Proportional Corresponding Sides Corresponding Angles
	G.SRT.3: Use the properties of similarity transformations to establish the AA criterion for two triangles to be similar.	I can show and explain that when two angles measures are known (AA Similarity Criterion), the third angle measure is also known (Third Angle Theorem). I can conclude and explain that AA similarity is a sufficient condition for two triangles to be similar.		Similarity Transformations Angle Measure Similar
	G.SRT.4: Prove and apply theorems about triangles.	I can use theorems, postulates, or definitions to prove theorems		Proof

	Theorems include but are not restricted to the following: a line parallel to one side of a triangle divides the other two proportionally, and conversely; the Pythagorean Theorem proved using triangle similarity	about triangles, including: a. A line parallel to one side of a triangle divides the other two sides proportionally; b. If a line divides two sides of a triangle proportionally, then it is parallel to the third side; c. The Pythagorean Theorem proved using triangle similarity. *I can apply the "Angle Bisector" Theorem, an angle bisector of a triangle will divide the opposite side into two segments that are proportional to the other two sides of the triangle.		Corresponding Angles Similarity Segment Addition Parallel Intersect Pythagorean Theorem
	G.SRT.5: Use congruence and similarity criteria for triangles to solve problems and to justify relationships in geometric figures that can be decomposed into triangles.	I can use triangle congruence and triangle similarity to solve problems (e.g. indirect measurement, missing sides/angle measures, side splitting theorem) I can use triangle congruence and triangle similarity to prove relationships in geometric figures.		Congruence Side Length Angle Measure Proportional Corresponding Sides Triangle Congruence Triangle Similarity

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TRIGONOMETRY	**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	I can use the characteristics of similar figures to justify the trigonometric ratios. I can define the following trigonometric ratios for acute angles in a right triangle: $\sin = \frac{opposite}{hypotenuse}$ $\cos = \frac{adjacent}{hypotenuse}$ $\tan = \frac{opposite}{adjacent}$ I can identify basic trig identities.	Quizizz: trig	Similarity Rigid Motion Dilation Angle Measure Proportional Right Triangle Line Segment Parallel Leg Hypotenuse Angle-Angle Similarity Postulate (AA) Corresponding Sides Sine Cosine Tangent Acute Angle Ratio

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				Trigonometry
	G.SRT.7: Explain and use the relationship between the sine and cosine of complementary angles.	I can define complementary angles. I can calculate sine and cosine ratios for acute angles in a right triangle when given two side lengths. I can use a diagram of a right triangle to explain that for a pair of complementary angles A and B, sinA = cosB and cosA = sinB.		Complementary Angles Acute Angle Sine Ratio Cosine Ratio Right Triangle
	G.SRT.8: Solve problems involving right triangles.* a. Use trigonometric ratios and the Pythagorean Theorem to solve right triangles in applied problems if one of the two acute angles and a side length is given.	I can solve right triangles by finding the measures of all sides and angles in the triangles. I can use sine, cosine and tangent to solve for unknown side lengths of a right triangle. I can use the Pythagorean Theorem to solve for an unknown side length of a right triangle. I can solve application problems involving right triangles, including angle of elevation and depression.		Sine Ratio Cosine Ratio Tangent Ratio Right Triangle Acute Angle Pythagorean Theorem Side Angle Triangle

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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.). *Copying a segment; copying an angle; bisecting a segment; bisecting an angle; constructing perpendicular lines, including the perpendicular bisector of a line segment; and constructing a line parallel to a given line through a point not on the line.*	I can use tools and methods (including computer software) to perform the following constructions: a. Copy a segment b. Bisect a segment c. Copy an angle d. Bisect an angle e. Construct perpendicular lines and bisectors f. Construct a line parallel through a point not on the line	Geogebra Google constructions folder Math Open Reference	Segment Angle Perpendicular Lines Perpendicular Bisector Parallel Lines Bisect Formal Construction Informal Construction Compass Straightedge
	G.CO.13: Construct an equilateral triangle, a square, and a regular hexagon inscribed in a circle.	I can define inscribed polygons (the vertices of the figure must be points on the circle). I can use tools and methods (including computer software) to perform the following constructions: a. Construct an equilateral triangle inscribed in a circle b. Construct a square		Construction Equilateral Triangle Square Regular Hexagon Inscribe Circle

		inscribed in a circle c. Construct a hexagon inscribed in a circle		
CIRCLES	**G.C.1:** Prove that all circles are similar using transformational arguments	I can prove that all circles are similar by showing that for a dilation centered at the center of a circle, the preimage and the image have equal central angle measures.		Circle Similar Figures Rigid Motion Dilation Angle Measure Preimage Image Central Angle
	G.C.2: Identify and describe relationships among angles, radii, chords, tangents, and arcs and use them to solve problems. Include the relationship between central, inscribed, and circumscribed angles and their intercepted arcs; inscribed angles on a diameter are right angles; the radius of a circle is perpendicular to the tangent where the radius intersects the circle.	I can identify central angles, inscribed angles, circumscribed angles, diameters, radii, chords and tangents. I can describe the relationship between a central/inscribed angle and the arc it intercepts. I can recognize that an inscribed angle whose sides intersect the endpoints of the diameter of a		Central Angle Inscribed Angle Circumscribed Angle Diameter Radius Chord

		circle is a right angle. I can recognize that the radius of a circle is perpendicular to the tangent where the radius intersects the circle.		Tangent Circle Intersect Endpoints Right Angle Perpendicular
	G.C.3: Construct the inscribed and circumscribed circles of a triangle; prove and apply the property that opposite angles are supplementary for a quadrilateral inscribed in a circle.	I can define the terms inscribed, circumscribed, angle bisector and perpendicular bisector. I can apply the Arc Addition Postulate to solve for missing arc measures. I can prove that opposite angles in an inscribed quadrilateral are supplementary. I can construct the circumscribed circle whose center is the point of intersection of the perpendicular bisectors of each side of the triangle (the circumcenter). I can construct the inscribed circle whose center is the point of intersection of the angle bisectors (the incenter).		Inscribed Circumscribed Angle Bisector Perpendicular Bisector Circle Incenter Circumcenter Arc Arc Addition Postulate Opposite Angles Supplementary

	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.	I can define similarity as rigid motions with dilations, which preserve angle measure and make lengths proportional. I can use similarity to calculate the length of an arc. I can calculate the area of a circle. I can define a sector a circle. I can calculate the area of a sector a circle.		Similarity Rigid Motion Angle Measure Length Proportional Arc Radian Angle Area Circle Sector Intercepted Arc
	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.	I can identify the center and radius of a circle given its equation. I can draw a right triangle with a horizontal leg, a vertical leg and the radius of a circle as its hypotenuse. I can use the distance formula		Distance Formula Pythagorean Theorem Difference Coordinates Radius

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		(Pythagorean Theorem), the coordinates of the circle's center, and the circle's radius to write the equation of the circle. I can identify the center and radius of a circle given its equation. I can convert the equation of a circle in general form to standard form by completing the square.		Circle Hypotenuse Equation Center Complete the Square Quadratic Equation Standard Form General Form
COORDINATE GEOMETRY	**G.GPE.4:** Use coordinates to prove simple geometric theorems algebraically and to verify geometric relationships algebraically, including properties of special triangles, quadrilaterals, and circles. For example, determine if a figure defined by four given points in the coordinate plane is a rectangle; determine if a specific point lies on a given circle.	I can represent the vertices of a figure in the coordinate plane using variables. I can use coordinates and the right tool to prove or disprove a claim about a figure. For example: ● Use slope to determine if sides are parallel, intersecting or perpendicular ● Use the distance formula to determine if sides are congruent or decide if a point is inside a circle, outside a circle, or on the circle ● Use the midpoint formula or		Side Length Vertex First Quadrant Slope Distance Midpoint Parallel Perpendicular

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		distance formula to decide if a side has been bisected.		Intersecting
	G.GPE.5: Justify 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.	I can draw a line on a coordinate plane and translate that line to produce its image. I can explain that these lines are parallel since translations preserve the angle. I can determine the slopes of the original line and its image after translations and show they have the same slope using specific examples and general coordinates (x, y). I can state that parallel lines have the same slope. I can determine if lines are parallel using their slopes. I can write the equation for a line that is parallel to a given line that passes through a given point. I can state that perpendicular lines have the opposite reciprocal slopes. I can determine if lines are perpendicular using their slopes.		Slope Parallel Perpendicular Product Line Linear Equation Slope-Intercept Form Point-Slope Form

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		I can write an equation for a line that is perpendicular to a given line that passes through a given point.		
	G.GPE.6: Find the point on a directed line segment between two given points that partitions the segment in a given ratio.	I can calculate the point(s) on a directed line segment whose endpoints are (x_1, y_1) *and* (x_2, y_2) that partitions the line segment into a given ratio, r_1 *to* r_2 using the formula $x = \frac{r_2 x_1 + r_1 x_2}{r_1 + r_2}$ *and* $y = \frac{r_2 y_1 + r_1 y_2}{r_1 + r_2}$		Directed Line Segment Endpoint Ratio
	G.GPE.7: Use coordinates to compute perimeters of polygons and areas of triangles and rectangles, e.g., using the distance formula.	I can use the coordinates of the vertices of a polygon graphed in the coordinate plane and use the distance formula to compute the perimeter. I can use the coordinates of the vertices of triangles and rectangles graphed in the coordinate plane to compute area.		Coordinate Plane Coordinates Distance Formula Perimeter Area Polygon Triangle Rectangle

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	G.CO.11: Prove and apply theorems about parallelograms. Theorems include but are not restricted to the following: opposite sides are congruent, opposite angles are congruent, the diagonals of a parallelogram bisect each other, and conversely, rectangles are parallelograms with congruent diagonals.	I can use theorems, postulates, or definitions to prove theorems about parallelograms, including; a. Prove opposite sides of a parallelogram are congruent. b. Prove opposite angles of a parallelogram are congruent. c. Prove the diagonals of a parallelogram bisect each other. d. Prove that rectangles are parallelograms with congruent diagonals.		Quadrilateral Parallelogram Rectangle Diagonals Distance Formula Midpoint Formula Slope Bisector Congruence Properties
	G.CO.14: Classify two-dimensional figures in a hierarchy based on their properties.	I can classify two-dimensional figures based off of properties of sides and angles. I can classify quadrilaterals in a hierarchy based on their properties.		Quadrilateral Parallelogram Rectangle Square Rhombus
GEOMETRIC MEASUREMENT AND DIMENSION	**G.GMD.1:** Give an informal argument for the formulas for the circumference of a circle, area of a circle, and volume of a cylinder, pyramid and cone. *Use dissection*	I can define π, as the ratio of a circle's circumference to its diameter. I can use algebra to demonstrate that because pi is the ratio of a		Pi Circle Circumference

	arguments, Cavalieri's Principle, and informal limit arguments.	circle's circumference to its diameter that the formula for a circle's circumference must be $c = \pi d$. I can inscribe a regular polygon in a circle and break it into many congruent triangles to find its area. I can calculate the area of a regular polygon. I can identify the base for prisms, cylinders, pyramids, and cones. I can calculate the volume of a prism using the formula $V = Bh$. I can calculate the volume of a cylinder using the formula $V = \pi r^2 h$. I can defend the statement, "The formula for the volume of a cylinder is basically the same as the formula for the volume of a prism". I can explain that the volume of a pyramid is ⅓ the volume of a prism with the same base are and height.		Diameter Dissection Equivalent Ratio Area Regular Polygon Perimeter Side Apothem Radius Base Prism Cylinder Pyramid Cone Volume

		I can explain that the volume of a cone is ⅓ the volume of a cylinder with the same base area and height. I can defend the statement "The formula for the volume of a cone is basically the same as the formula for the volume of a pyramid".		
	G.GMD.3: Use volume formulas for cylinders, pyramids, cones, and spheres to solve problems.	I can calculate the volume of the following three-dimensional figures: a. Cylinder b. Cone c. Pyramid d. Sphere I can use the formula for the volume of the three-dimensional figures listed above to solve problems involving such figures.		Volume Cylinder Pyramid Cone Sphere
	G.GMD.4: Identify the shapes of two-dimensional cross-sections of three-dimensional objects, and identify the three-dimensional objects generated by rotations of two-dimensional objects.	I can identify the shapes of two-dimensional cross-sections of three-dimensional objects (e.g. The cross-section of a sphere is a circle and the cross-section of a rectangular prism is a rectangle, triangle, pentagon or hexagon.) I can rotate two-dimensional figures and identify the three-dimensional object that is		Cross-section Rotate

		formed by the rotation (e.g. Rotating a circle produces a sphere and rotating a rectangle produces a cylinder.)		
	G.GMD.5: Understand how and when changes to the measure of a figure (lengths or angles) result in similar and non-similar figures.	I can identify that changing the corresponding angle measure will result in non-similar figures I can identify that changing the corresponding side lengths proportionally will result in similar figures.		Similar Corresponding Angles Corresponding Sides Proportional
	G.GMD.6: When figures are similar, understand and apply the fact that when a figure is scaled by a factor of k, the effect on the lengths, areas and volumes is that they are multiplied by $k,\ k^2 and\ k^3$, respectively.	I can use the scale factor, k, to identify the new lengths in a given figure. I can recognize that the area of the figure will change by a factor of k^2 . I can recognize that the volume of the figure will change by a factor of k^3 .		Scale Factor Area Volume
PROBABILITY	**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”).	I can define unions, intersections and complements of events I can describe events as subsets of a sample space (the set of outcomes) using characteristics (or categories) of the outcomes, or as unions, intersections, or		Event Sample space Subset Union

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		complements of other events ("or", "and", "not")		Intersection Complement
	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.	I can categorize events as independent or not using the characterization that two events A and B are independent when the probability of A and B occurring together is the product of their probabilities I can determine the outcome of independent events as the product of their probabilities		Independent events Probability Product Event
	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 B given A is the same as the probability of B.	I can recognize and use the formula for the conditional probability of A given B: $P(A\|B) = \frac{P(A \text{ and } B)}{P(B)}$. I can 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 B given A is the same as the probability of B.		Probability Dependent events Conditional probability Independent events

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	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.	I can determine when a two-way frequency table is an appropriate display for a set of data. I can collect data from a random sample. I can construct a two-way frequency table for the data using the appropriate categories for each variable. I can decide if events are independent of each other by checking to see if $P(A\|B) = P(A)$ are equal. I can calculate the conditional probability of A given B using the formula $P(A\|B) = \frac{P(A \text{ and } B)}{P(B)}$.. I can pose a question for which a two-way frequency is appropriate, use statistical techniques to sample the population, and design an appropriate product to summarize the process and report the results.		Two-way frequency table Display Data Variable Category Random sample Probability Event Independent events Formula Conditional probability

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	S.CP.5: Recognize and explain the concepts of conditional probability and independence in everyday language and everyday situations.	I can illustrate the concept of conditional probability using everyday examples of dependent events. I can illustrate the concept of independence using everyday examples of independent events.		Conditional probability Dependent events Independence Independent events
	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.	I can calculate the probability of the intersection of two events. I can calculate the conditional probability of A given B using the model $P(A\|B) = \frac{P(A \text{ and } B)}{P(B)}$. I can interpret probability based on the context of the given problem.		Probability Event Dependent event Conditional probability Intersection Set
	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.	I can apply the Addition Rule to determine the probability of the union of two events using the formula $P(A \text{ or } B) = P(A) + P(B) - P(A \text{ and } B)$. I can interpret the probability of unions and intersections based on the context of the given problem.		Probability Event Intersection Union Addition Rule
MODELING WITH	**G.MG.1:** Use geometric shapes,	I can represent real-world objects		Circumference

LAKEWOOD CITY SCHOOLS

Mission Statement

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GEOMETRY	their measures, and their properties to describe objects, e.g. modeling a tree trunk or a human torso as a cylinder.	as geometric figures. I can estimate measures (circumference, area, perimeter, volume) of real-world objects using comparable geometric shapes or three-dimensional figures. I can apply the properties of geometric figures to comparable real-world objects (e.g. The spokes of a wheel of bicycle are equal lengths because they represent the radii of a circle.)		Area Perimeter Volume
	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.	I can decide whether it is best to calculate or estimate the area or volume of a geometric figure and perform the calculation or estimation. I can break into geometric figures into manageable pieces. I can convert units of measure (e.g. convert square feet to square miles). I can apply area and volume to situations involving density (e.g. determine the population in an		Area Volume Unit of Measure Convert Density Composite Figures

		area, the weight of water given its density or the amount of energy in a three-dimensional figure).		
	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.	I can represent a visual representation of a design problem. I can solve design problems using a geometric model (graph, equation, table, formula). I can interpret the results and make conclusions based on the geometric model.		Geometric Model Graph Equation Table Formula

Resources

[Ohio Department of Education Model Curriculum]

[Kansas Teachers of Mathematics Geometry Flipbook]