1	Tools of Geometry	This chapter begins by addressing the building blocks of geometry which are the point, the line, and the plane. Students will construct line segments, midpoints, bisectors, angles, angle bisectors, perpendicular lines, parallel lines, polygons, and points of concurrency. A translation is a rigid motion that preserves the size and shape of segments, angles, and polygons. Students use the coordinate plane and algebra to determine the characteristics of lines, segments, and points of concurrency.			Modules	Worked Examples	Peer Analysis	Talk the Talk	Technology
Chapter	**Lesson Title**	**Key Math Objective**	**CCSS**	**Key Terms**					
1.1	Let's Get This Started! Points, Lines, Planes, Rays, and Segments	• Identify and name points, lines, planes, rays, and line segments. • Use symbolic notation to describe points, lines, planes, rays, and line segments. • Describe possible intersections of lines and planes. • Identify construction tools. • Distinguish between a sketch, a drawing, and a construction.	G.CO.1	• Point • Line • Collinear points • Plane • Compass • Straightedge • Sketch • Draw • Construct • Coplanar lines • Skew lines • Ray • Endpoint of a ray • Line segment • Endpoints of a line segment • Congruent line segments	•	•	•	•	
1.2	Attack of the Clones Translating and Constructing Line Segments	• Determine the distance between two points. • Use the Pythagorean Theorem to derive the Distance Formula. • Apply the Distance Formula on the coordinate plane. • Translate a line segment on the coordinate plane. • Copy or duplicate a line segment by construction.	G.CO.1 G.CO.2 G.CO.4 G.CO.5 G.CO.6 G.CO.12 G.CO.13	• Distance Formula • Transformation • Rigid motion • Translation • Image • Pre-image • Arc CONSTRUCTIONS • Copying a line segment • Duplicating a line segment	•	•	•	•	

1.3	Stuck in the Middle Midpoints and Bisectors	• Determine the midpoint of a line segment on a coordinate plane. • Use the Midpoint Formula. • Apply the Midpoint Formula on the coordinate plane. • Bisect a line segment using patty paper. • Bisect a line segment by construction. • Locate the midpoint of a line segment.	G.CO.12 G.GPE.6 G.MG.1	• Midpoint • Midpoint Formula • Segment bisector CONSTRUCTIONS • Bisecting a line segment.	•		•	•	
1.4	What's Your Angle? Translating and Constructing Angles and Angle Bisectors	• Translate an angle on the coordinate plane. • Copy or duplicate an angle by construction. • Bisect an angle by construction.	G.CO.1 G.CO.2 G.CO.4 G.CO.5 G.CO.6 G.CO.12	• Angle • Angle bisector CONSTRUCTIONS • Copying an angle • Duplicating an angle • Bisecting an angle	•	•	•		
1.5	If You Build It ... Constructing Perpendicular Lines, Parallel Lines, and Polygons	• Construct a perpendicular line to a given line. • Construct a parallel line to a given line through a point not on the line. • Construct an equilateral triangle given the length of one side of the triangle. • Construct an isosceles triangle given the length of one side of the triangle. • Construct a square given the perimeter (as the length of a given line segment). • Construct a rectangle that is not a square given the perimeter (as the length of a given line segment).	G.CO.12	• Perpendicular bisector CONSTRUCTIONS • A perpendicular line to a given line through a point on the line • A perpendicular line to a given line through a point not on the line	•	•	•	•	
1.6	What's the Point? Points of Concurrency	• Construct the incenter, circumcenter, centroid, and orthocenter. • Locate points of concurrency using algebra.	G.CO.12 G.MG.3	• Concurrent • Point of concurrency • Incenter • Circumcenter • Median • Centroid • Altitude • Orthocenter	•		•	•	

2	Introduction to Proofs	This chapter focuses on the foundations of proof. Paragraph, two-column, construction, and flow chart proofs are presented. Proofs involving angles and parallel lines are completed.			Modules	Worked Examples	Peer Analysis	Talk the Talk	Technology
Chapter	**Lesson Title**	**Key Math Objective**	**CCSS**	**Key Terms**					
2.1	A Little Dash of Logic Foundations for Proof	• Define inductive and deductive reasoning. • Identify methods of reasoning. • Compare and contrast methods of reasoning. • Create examples using inductive and deductive reasoning. • Identify the hypothesis and conclusion of a conditional statement. • Explore the truth values of conditional statements. • Use a truth table.	G.CO.9	• Induction • Deduction • Counterexample • Conditional statement • Propositional form • Propositional variables • Hypothesis • Conclusion • Truth value • Truth table	•	•	•	•	
2.2	And Now From a New Angle Special Angles and Postulates	• Calculate the complement and supplement of an angle. • Classify adjacent angles, linear pairs, and vertical angles. • Differentiate between postulates and theorems. • Differentiate between Euclidean and non-Euclidean geometries.	G.CO.9	• Supplementary angles • Complementary angles • Adjacent angles • Linear pairs • Vertical angles • Postulate • Theorem • Euclidean geometry • Linear Pair Postulate • Segment Addition Postulate • Angle Addition Postulate	•	•			

2.3	Forms of Proof Paragraph Proof, Two-Column Proof, Construction Proof, and Flow Chart Proof	• Use the addition and subtraction properties of equality. • Use the reflexive, substituition, and transitive properties. • Write a paragraph proof. • Prove theorems involving angles. • Complete a two-column proof. • Perform a construction proof. • Complete a flow chart proof.	G.CO.9	• Addition Property of Equality • Subtraction Property of Equality • Reflexive Property • Substitution Property • Transitive Property • Flow chart proof • Two-column proof • Paragraph proof • Construction proof • Right Angle Congruence Theorem • Congruent Supplement Theorem • Congruent Complement Theorem • Vertical Angle Theorem	•	•	•	•	
2.4	What's Your Proof? Angle Postulates and Theorems	• Use the Corresponding Angle Postulate. • Prove the Alterate Interior Angle Theorem. • Prove the Alternate Exterior Angle Theorem. • Prove the Same-Side Interior Angle Theorem. • Prove the Same-Side Exterior Angle Theorem.	G.CO.9	• Corresponding Angle Postulate • Conjecture • Alternate Interior Angle Theorem • Alternate Exterior Angle Theorem • Same-Side Interior Angle Theorem • Same-Side Exterior Angle Theorem	•		•	•	

2.5	A Reversed Condition Parallel Line Converse Theorems	• Write and prove parallel line converse conjectures.	G.CO.9	• Converse • Corresponding Angle Converse Postulate • Alternate Interior Angle Converse Theorem • Alternate Exterior Angle Converse Theorem • Same-Side Interior Angle Converse Theorem • Same-Side Exterior Angle Converse Theorem	•			•	

3	Properties of Triangles	Theorems involving angles and side lengths of triangles are presented. The last two lessons discuss properties and theorems of 45°-45°-90° triangles and 30°-60°-90° triangles.			Modules	Worked Examples	Peer Analysis	Talk the Talk	Technology
Chapter	**Lesson Title**	**Key Math Objective**	**CCSS**	**Key Terms**					
3.1	Inside Out Triangle Sum, Exterior Angle, and Exterior Inequality Theorems	• Prove the Triangle Sum Theorem. • Explore the relationship between the interior angle measures and the side lengths of a triangle. • Identify the remote interior angles of a triangle. • Identify the exterior angle of a triangle. • Explore the relationship between the exterior angle measure and two remote interior angles of a triangle. • Prove the Exterior Angle Theorem. • Prove the Exterior Angle Inequality Theorem.	G.CO.10 G.MG.1	• Triangle Sum Theorem • Remote Interior Angles of a Triangle • Exterior Angle Theorem • Exterior Angle Inequality Theorem	•			•	
3.2	Trade Routes and Pasta Anyone? The Triangle Inequality Theorem	• Explore the relationship between the side lengths of a triangle and the measures of its interior angles. • Prove the Triangle Inequality Theorem.	G.CO.10	• Triangle Inequality Theorem	•		•		
3.3	Stamps Around the World Properties of a 45°-45°-90° Triangle	• Use the Pythagorean Theorem to explore the relationship between the side lengths of a triangle and the measures of its interior angles. • Prove the 45°-45°-90° Triangle Theorem.	G.CO.10 G.MG.1	• 45°-45°-90° Triangle Theorem	•				
3.4	More Stamps, Really? Properties of a 30°-60°-90° Triangle	• Use the Pythagorean Theorem to explore the relationship between the side lengths of a triangle and the measures of its interior angles. • Prove the 30°-60°-90° Triangle Theorem.	G.CO.10 G.MG.1	• 30°-60°-90° Triangle Theorem	•			•	

4	Similarity Through Transformations	This chapter addresses similar triangles and establishes similar triangle theorems as well as theorems about proportionality. The chapter leads student exploration of the conditions for triangle similarity and opportunities for applications of similar triangles.			Modules	Worked Examples	Peer Analysis	Talk the Talk	Technology
Chapter	**Lesson Title**	**Key Math Objective**	**CCSS**	**Key Terms**					
4.1	Big and Small Dilating Triangles to Create Similar Triangles	• Prove that triangles are similar using geometric theorems. • Prove that triangles are similar using transformations.	G.SRT.1.a G.SRT.1.b G.SRT.2 G.SRT.5 G.MG.1	• Similar triangles	•				
4.2	Similar Triangles or Not Similar Triangle Theorems	• Use constructions to explore similar triangle theorems. • Explore the Angle-Angle (AA) Similarity Theorem • Explore the Side-Side-Side (SSS) Similarity Theorem • Explore the Side-Angle-Side (SAS) Similarity Theorem	G.SRT.3 G.SRT.5	• Angle-Angle Similarity Theorem • Side-Side-Side Similarity Theorem • Side-Angle-Side Similarity Theorem • Included angle • Included side	•		•	•	
4.3	Keep It In Proportion Theorems About Proportionality	• Prove the Angle Bisector/Proportional Side Theorem. • Prove the Triangle Proportionality Theorem. • Prove the Converse of the Triangle Proportionality Theorem. • Prove the Proportional Segments Theorem associated with parallel lines.	G.GPE.7 G.SRT.4 G.SRT.5	• Angle Bisector/Proportional Side Theorem • Triangle Proportionality Theorem • Converse of the Triangle Proportionality Theorem • Proportional Segments Theorem • Triangle Midsegment Theorem	•		•		

4.4	Geometric Mean More Similar Triangles	• Explore the relationships created when an altitude is drawn to the hypotenuse of a right triangle. • Prove the Right Triangle/Altitude Similarity Theorem. • Use the geometric mean to solve for unknown lengths.	G.SRT.4 G.SRT.5 G.MG.1	• Right Triangle/Altitude Similarity Theorem • Geometric Mean • Right Triangle Altitude/Hypotenuse Theorem • Right Triangle Altitude/Leg Theorem	•				
4.5	Proving the Pythagorean Theorem Proving the Pythagorean Theorem and the Converse of the Pythagorean Theorem	• Prove the Pythagorean Theorem using similar triangles. • Prove the Converse of the Pythagorean Theorem using algebraic reasoning.	G.SRT.4	N/A	•				
4.6	Indirect Measurement Application of Similar Triangles	• Identify similar triangles to calculate indirect measurements. • Use proportions to solve for unknown measurements.	G.SRT.5 G.MG.1	• Indirect Measurement	•	•			

5	Congruence Through Transformations	This chapter focuses on proving triangle congruence threorems and using the theorems to determine whether triangles are congruent.			Modules	Worked Examples	Peer Analysis	Talk the Talk	Technology
Chapter	Lesson Title	Key Math Objective	CCSS	Key Terms					
5.1	We Like to Move It! Translating, Rotating, and Reflecting Geometric Figures	• Translate geometric figures on a coordinate plane. • Rotate geometric figures on a coordinate plane. • Reflect geometric figures on a coordinate plane.	G.CO.2 G.CO.3 G.CO.5	N/A	•	•	•	•	
5.2	Hey, Haven't I Seen You Before? Congruent Triangles	• Identify corresponding sides and corresponding angles of congruent triangles. • Explore the relationship between the corresponding sides of congruent triangles. • Explore the relationship between the corresponding angles of congruent triangles. • Write congruence statements for congruent triangles. • Identify and use rigid motion to create new images.	G.CO.6 G.CO.7 G.CO.8	N/A	•			•	
5.3	It's All About the Sides Side-Side-Side Congruence Theorem	• Explore the Side-Side-Side Congruence Theorem through constructions. • Explore the Side-Side-Side Congruence Theorem on the coordinate plane. • Prove the Side-Side-Side Congruence Theorem.	G.CO.6 G.CO.7 G.CO.8 G.CO.10 G.CO.12	• Side-Side-Side Congruence Theorem	•		•		
5.4	Make Sure the Angle is Included Side-Angle-Side Congruence Theorem	• Explore Side-Angle-Side Congruence Theorem using constructions. • Explore Side-Angle-Side Congruence Theorem on the coordinate plane. • Prove the Side-Angle-Side Congruence Theorem.	G.CO.6 G.CO.7 G.CO.8 G.CO.10 G.CO.12	• Side-Angle-Side Congruent Theorem	•	•	•		

5.5	Angle to the Left of Me, Angle to the Right of Me Angle-Side-Angle Congruence Theorem	• Explore the Angle-Side-Angle Congruence Theorem using constructions. • Explore the Angle-Side-Angle Congruence Theorem on the coordinate plane. • Prove the Angle-Side-Angle Congruence Theorem.	G.CO.6 G.CO.7 G.CO.8 G.CO.10 G.CO.12	• Angle-Side-Angle Congruence Theorem	•		•		
5.6	Sides Not Included Angle-Angle-Side Congruent Theorem	• Explore Angle-Angle-Side Congruence Theorem using constructions. • Explore Angle-Angle-Side Congruence Theorem on the coordinate plane. • Prove the Angle-Angle-Side Congruence Theorem.	G.CO.6 G.CO.7 G.CO.8 G.CO.10 G.CO.12	• Angle-Angle-Side Congruence Theorem	•		•	•	
5.7	Any Other Theorems You Forgot to Mention? Using Congruent Triangles	• Prove that the points on a perpendicular bisector of a line segment are equidistant to the endpoints of the line segment. • Show that AAA for congruent triangles does not work. • Show that SSA for congruent triangles does not work. • Use the congruence theorems to determine triangle congruency.	G.CO.6 G.CO.7 G.CO.8 G.CO.9 G.CO.12	N/A	•				

6	Using Congruence Theorems	This chapter covers triangle congruence, including right triangle and isosceles triangle congruence theorems. Lessons provide opportunities for students to explore the congruence of corresponding parts of congruent triangles as well as continuing work with proof, introducing indirect proof, or proof by contradiction. Throughout, students apply congruence theorems to solve problems.			Modules	Worked Examples	Peer Analysis	Talk the Talk	Technology
Chapter	**Lesson Title**	**Key Math Objective**	**CCSS**	**Key Terms**					
6.1	Time to Get Right Right Triangle Congruence Theorems	• Prove the Hypotenuse-Leg Congruence Theorem using a two-column proof and construction. • Prove the Leg-Leg, Hypotenuse-Angle, and Leg-Angle Congruence Theorems by relating them to general triangle congruence theorems. • Apply right triangle congruence theorems.	G.CO.6 G.CO.7 G.CO.8 G.CO.10 G.CO.12 G.MG.1	• Hypotenuse-Leg (HL) Congruence Theorem • Leg-Leg (LL) Congruence Theorem • Hypotenuse-Angle (HA) Congruence Theorem • Leg-Angle (LA) Congruence Theorem	•			•	
6.2	CPCTC Corresponding Parts of Congruent Triangles are Congruent	• Identify corresponding parts of congruent triangles. • Use corresponding parts of congruent triangles are congruent to prove angles and segments are congruent. • Use corresponding parts of congruent triangles are congruent to prove the Isosceles Triangle Base Angle Theorem. • Use corresponding parts of congruent triangles are congruent to prove the Isosceles Triangle Base Angle Converse Theorem. • Apply corresponding parts of congruent triangles.	G.CO.10 G.MG.1	• Corresponding parts of congruent triangles are congruent (CPCTC) • Isosceles Triangle Base Angle Theorem • Isosceles Triangle Base Angle Converse Theorem	•	•			
6.3	Congruence Theorems in Action Isosceles Triangle Theorems	• Prove the Isosceles Triangle Base Theorem. • Prove the Isosceles Triangle Vertex Angle Theorem. • Prove the Isosceles Triangle Perpendicular Bisector Theorem. • Prove the Isosceles Triangle Altitude to Congruent Sides Theorem. • Prove the Isosceles Triangle Angle Bisector to Congruent Side Theorem.	G.CO.10 G.MG.1	• Vertex angle of an isosceles triangle • Isosceles Triangle Base Theorem • Isosceles Triangle Vertex Angle Theorem • Isosceles Triangle Perpendicular Bisector Theorem • Isosceles Triangle Altitude to Congruent Sides Theorem • Isosceles Triangle Angle Bisector to Congruent Sides Theorem	•			•	

6.4	Making Some Assumptions Inverse, Contrapositive, Direct Proof, and Indirect Proof	• Write the inverse and contrapositive of a conditional statement. • Differentiate between direct and indirect proof. • Use indirect proof	G.CO.10 G.MG.1	• Inverse • Contrapositive • Direct proof • Indirect proof or proof by contradiction • Hinge Theorem • Hinge Converse Theorem	•	•			

7	Properties of Quadrilaterals	This chapter focuses on properties of squares, rectangles, parallelograms, rhombi, kites, and trapezoids. The sum of interior and exterior angles of polygons is also included.			Modules	Worked Examples	Peer Analysis	Talk the Talk	Technology
Chapter	**Lesson Title**	**Key Math Objective**	**CCSS**	**Key Terms**					
7.1	Squares and Rectangles Properties of Squares and Rectangles	• Prove the Perpendicular/Parallel Line Theorem. • Construct a square and a rectangle. • Determine the properties of a square and rectangle. • Prove the properties of a square and a rectangle. • Solve problems using the properties of a square and a rectangle.	G.CO.11 G.CO.12 G.SRT.8 G.GPE.5 G.MG.1	• Perpendicular/Parallel Line Theorem	•				
7.2	Parallelograms and Rhombi Properties of Parallelograms and Rhombi	• Construct a parallelogram. • Construct a rhombus. • Prove the properties of a parallelogram. • Prove the properties of a rhombus. • Solve problems using the properties of a parallelogram and a rhombus.	G.CO.11 G.CO.12 G.GPE.5 G.MG.1	• Parallelogram/ Congruent-Parallel Side Theorem	•		•		
7.3	Kites and Trapezoids Properties of Kites and Trapezoids	• Prove the Parallelogram/Congruent-Parallel Side Theorem. • Construct a kite and a trapezoid. • Determine the properties of a kite and a trapezoid. • Prove the properties of kites and trapezoids. • Solve problems using the properties of kites and trapezoids.	G.CO.11 G.SRT.8 G.GPE.5 G.CO.12 G.MG.1	• Base angles of a trapezoid • Isosceles trapezoid • Biconditional statement • Midsegment • Trapezoid Midsegment Theorem	•	•	•		

7.4	Interior Angles of a Polygon Sum of the Interior Angle Measures of a Polygon	• Write the formula for the sum of the measures of the interior angles of any polygon. • Calculate the sum of the measures of the interior angles of any polygon, given the number of sides. • Calculate the number of sides of a polygon, given the sum of the measures of the interior angles. • Write a formula for the measure of each interior angle of any regular polygon. • Calculate the measure of an interior angle of a regular polygon, given the number of sides. • Calculate the number of sides of a regular polygon, given the sum of the measures of the interior angles.	G.CO.9 G.SRT.8 G.MG.1	• Interior angle of a polygon	•		•		
7.5	Exterior and Interior Angle Measurement Interactions Sum of the Exterior Angle Measures of a Polygon	• Write a formula for the sum of the exterior angles of any polygon. • Calculate the sum of the exterior angles of any polygon, given the number of sides. • Write a formula for the measure of each exterior angle of any regular polygon. • Calculate the measure of an exterior angle of a regular polygon, given the number of sides. • Calculate the number of sides of a regular polygon, given the measure of each exterior angle.	G.CO.9 G.CO.12 G.SRT.8 G.MG.1	• Exterior angle of a polygon	•	•			
7.6	Quadrilateral Family Categorizing Quadrilaterals Based on Their Properties	• List the properties of quadrilaterals. • Categorize quadrilaterals based upon their properties. • Construct quadrilaterals given a diagonal.	G.CO.12	N/A	•				

8	Trigonometry	This chapter introduces students to trigonometric ratios using right triangles. Lessons provide opportunities for students to discover and analyze these ratios and solve application problems using them. Students also explore the reciprocals of the basic trigonometric ratios sine, cosine, and tangent, along with their inverses to determine unknown angle measures. Deriving the Law of Sines and the Law of Cosines extends students' understanding of trigonometry to apply to all triangles.			Modules	Worked Examples	Peer Analysis	Talk the Talk	Technology
Chapter	**Lesson Title**	**Key Math Objective**	**CCSS**	**Key Terms**					
8.1	Three Angle Measure Introduction to Trigonometry	• Explore trigonometric ratios as measurement conversions. • Analyze the properties of similar right triangles.	G.SRT.3 G.SRT.5 G.SRT.6	• Reference angle • Opposite side • Adjacent side	•		•	•	
8.2	The Tangent Ratio Tangent Ratio, Cotangent Ratio, and Inverse Tangent	• Use the tangent ratio in a right triangle to solve for unknown side lengths. • Use the cotangent ratio in a right triangle to solve for unknown side lengths. • Relate the tangent ratio to the cotangent ratio. • Use the inverse tangent in a right triangle to solve for unknown angle measures.	G.SRT.3 G.SRT.5 G.SRT.6 G.SRT.8 G.MG.1	• Rationalizing the denominator • Tangent (tan) • Cotangent (cot) • Inverse tangent	•	•		•	
8.3	The Sine Ratio Sine Ratio, Cosecant Ratio, and Inverse Sine	• Use the sine ratio in a right triangle to solve for unknown side lengths. • Use the cosecant ratio in a right triangle to solve for unknown side lengths. • Relate the sine ratio to the cosecant ratio. • Use the inverse sine in a right triangle to solve for unknown angle measures.	G.SRT.8 G.MG.1	• Sine (sin) • Cosecant (csc) • Inverse sine	•		•	•	
8.4	The Cosine Ratio Cosine Ratio, Secant Ratio, and Inverse Cosine	• Use the cosine ratio in a right triangle to solve for unknown side lengths. • Use the secant ratio in a right triangle to solve for unknown side lengths. • Relate the cosine ratio to the secant ratio. • Use the inverse cosine in a right triangle to solve for unknown angle measures	G.SRT.8 G.MG.1	• Cosine (cos) • Secant (sec) • Inverse cosine	•			•	
8.5	We Complement Each Other! Complement Angle Relationships	• Explore complement angle relationships in a right triangle. • Solve problems using complement angle relationships.	G.SRT.7 G.SRT.8 G.MG.1	N/A	•			•	

8.6	Time to Derive! Deriving the Triangle Area Formula, the Law of Sines, and the Law of Cosines	• Derive the formula for the area of a triangle using the sine function. • Derive the Law of Sines. • Derive the Law of Cosines.	G.SRT.9 G.SRT.10 G.SRT.11 G.MG.1	• Law of Sines • Law of Cosines	•			•	

9	Circles	This chapter reviews information about circles and then focuses on angles and arcs related to a circle, chords, and tangents. Several theorems related to circles are proven throughout the chapter.			Modules	Worked Examples	Peer Analysis	Talk the Talk	Technology
Chapter	**Lesson Title**	**Key Math Objective**	**CCSS**	**Key Terms**					
9.1	Riding a Ferris Wheel Introduction to Circles	• Review the definition of line segments related to a circle such as chord, diameter, secant, and tangent. • Review definitions of points related to a circle such as center and point of tangency. • Review the definitions of angles related to a circle such as central angle and inscribed angle. • Review the definitions of arcs related to a circle such as major arc, minor arc, and semicircle. • Prove all circles are similar using rigid motion.	G.CO.1 G.C.1 G.C.2 G.MG.1	• Center of a circle • Radius • Chord • Diameter • Secant of a circle • Tangent of a circle • Point of tangency • Central angle • Inscribed angle • Arc • Major arc • Minor arc • Semicircle	•		•	•	
9.2	Take the Wheel Central Angles, Inscribed Angles, and Intercepted Arcs	• Determine the measures of arcs. • Use the Arc Addition Postulate. • Determine the measures of central angles and inscribed angles. • Prove the Inscribed Angle Theorem. • Prove the Parallel Lines–Congruent Arcs Theorem.	G.CO.1 G.C.2 G.MG.1	• Degree measure of an arc • Adjacent arcs • Arc Addition Postulate • Intercepted arc • Inscribed Angle Theorem • Parallel Lines-Congruent Arc Theorem	•		•	•	
9.3	Manhole Covers Measuring Angles Inside and Outside of Circles	• Determine measures of angles formed by two chords. • Determine measures of angles formed by two secants. • Determine measures of angles formed by a tangent and a secant. • Determine measures of angles formed by two tangents. • Prove the Interior Angles of a Circle Theorem. • Prove the Exterior Angles of a Circle Theorem. • Prove the Tangent to a Circle Theorem	G.C.2 G.MG.1	• Interior Angles of a Circle Theorem • Exterior Angle of a Circle Theorem • Tangent to a Circle Theorem	•	•			

9.4	Color Theory Chords	• Determine the relationships between a chord and a diameter of a circle. • Determine the relationships between congruent chords and their minor arcs. • Prove the Diameter–Chord Theorem. • Prove the Equidistant Chord Theorem. • Prove the Equidistant Chord Converse Theorem. • Prove the Congruent Chord–Congruent Arc Theorem. • Prove the Congruent Chord–Congruent Arc Converse Theorem. • Prove the Segment–Chord Theorem.	G.C.2 G.MG.1	• Diameter– Chord Theorem • Equidistant Chord Theorem • Equidistant Chord Converse Theorem • Congruent Chord–Congruent Arc Theorem • Congruent Chord–Congruent Arc Converse Theorem • segments of a chord • Segment–Chord Theorem	•				
9.5	Solar Eclipses Tangents and Secants	• Determine the relationship between a tangent line and a radius. • Determine the relationship between congruent tangent segments. • Prove the Tangent Segment Theorem. • Prove the Secant Segment Theorem. • Prove the Secant Tangent Theorem.	G.C.4 G.MG.1	• Tangent segment • Tangent Segment Theorem • Secant segment • External secant segment • Secant Segment Theorem • Secant Tangent Theorem	•	•			

10	Arcs and Sectors of Circles	This chapter explores inscribed and circumscribed polygons as well as circles. Students determine relationships between central angles, arcs, arc lengths, areas of parts of circles, as well as linear velocity and angular velocity.			Modules	Worked Examples	Peer Analysis	Talk the Talk	Technology
Chapter	**Lesson Title**	**Key Math Objective**	**CCSS**	**Key Terms**					
10.1	Replacement for a Carpenter's Square Inscribed and Circumscribed Triangles and Quadrilaterals	• Inscribe a triangle in a circle. • Explore properties of a triangle inscribed in a circle. • Circumscribe a triangle about a circle. • Inscribe a quadrilateral in a circle. • Explore properties of a quadrilateral inscribed in a circle. • Circumscribe a quadrilateral about a circle. • Prove the Inscribed Right Triangle–Diameter Theorem. • Prove the Inscribed Right Triangle–Diameter Converse Theorem. • Prove the Inscribed Quadrilateral–Opposite Angles Theorem.	G.C.3	• Inscribed polygon • Inscribed Right Triangle–Diameter Theorem • Inscribed Right Triangle–Diameter Converse Theorem • Circumscribed polygon • Inscribed Quadrilateral–Opposite Angles Theorem	•				
10.2	Gears Arc Length	• Distinguish between arc measure and arc length. • Use a formula to solve for arc length in degree measures. • Distinguish between degree measure and radian measure. • Use a formula to solve for arc length in radian measures.	G.C.5 G.MG.1	• Arc length • Radian	•	•	•	•	
10.3	Playing Darts Sectors and Segments of a Circle	• Determine the area of sectors of a circle. • Derive the formula for the area of a sector. • Determine the area of segments of a circle.	G.C.5 G.MG.1	• Concentric circles • Sector of a circle • Segment of a circle	•	•	•		

10.4	Circle K. Excellent Circle Problems	• Use formulas associated with circles to solve problems. • Use theorems associated with circles to solve problems. • Use angular velocity and linear velocity to solve problems.	G.MG.1 G.MG.3	• Linear velocity • Angular velocity	•				

11	Three-Dimensional Figures	This chapter focuses on three-dimensional figures. The first two lessons address rotating and stacking twodimensional figures to created three-dimensional solids. Cavalieri's principle is presented and is used to derive the formulas for a volume of a cone, pyramid, and sphere. The chapter culminates with the topics of cross sections and diagonals in three dimensions.			Modules	Worked Examples	Peer Analysis	Talk the Talk	Technology
Chapter	**Lesson Title**	**Key Math Objective**	**CCSS**	**Key Terms**					
11.1	Whirlygigs for Sale! Rotating Two-Dimensional Figures through Space	• Apply rotations to two-dimensional plane figures to create three-dimensional solids. • Describe three-dimensional solids formed by rotations of plane figures through space.	G.GMD.4	• Disc	•				
11.2	Cakes and Pancakes Translating and Stacking Two-Dimensional Figures	• Apply translations for two-dimensional plane figures to create three-dimensional solids. • Describe three-dimensional solids formed by translations of plane figures through space. • Build three-dimensional solids by stacking congruent or similar two-dimensional plane figures.	G.GMD.4 G.MG.3	• Isometric paper • Right triangular prism • Oblique triangular prism • Right rectangular prism • Oblique rectangular prism • Right cylinder • Oblique cylinder	•			•	
11.3	Cavalieri's Principles Application of Cavalieri's Principles	• Explore Cavalieri's Principle for two-dimensional figures (area). • Explore Cavalieri's Principle for three-dimensional objects (volume).	G.GMD.1 G.GMD.2 G.GMD.4	• Cavalieri's Principle	•			•	
11.4	Spin to Win Volume of Cones and Pyramids	• Rotate two-dimensional plane figures to generate three-dimensional figures. • Give an informal argument for the volume of cones and pyramids.	G.MG.1 G.GMD.4	N/A	•	•			

11.5	Spheres a la Archimedes Volume of a Sphere	• Derive the formula for the volume of a sphere.	G.GMD.4	• Sphere • Radius of a sphere • Diameter of a sphere • Great circle of a sphere • Hemisphere • Annulus	•		•		
11.6	Turn Up the ... Using Volume Formulas	• Apply the volume for a pyramid, cylinder, cone, and sphere to solve problems.	G.GMD.3 G.MG.1	N/A	•		•		
11.7	Tree Rings Cross Sections	• Determine the shapes of cross sections. • Determine the shapes of the intersections of solids and planes.	G.GMD.4 G.MG.1	N/A	•		•		
11.8	Two Dimensions Meet Three Dimensions Diagonals in Three Dimensions	• Use the Pythagorean Theorem to determine the length of a diagonal of a solid. • Use a formula to determine the length of a diagonal of a rectangular solid given the lengths of three perpendicular edges. • Use a formula to determine the length of a diagonal of a rectangular solid given the diagonal measurements of three perpendicular sides.	G.MG.1 G.MG.3	N/A	•		•		

12	Introduction to Quadratic Functions	This chapter examines the graphical behavior of quadratic functions, including domain, range, increasing and decreasing, absolute maximum and absolute minimum, symmetry, and zeros. The relationship between the form of a quadratic function and the graph of a quadratic function is discussed, especially the key graphical characteristics identified from the form of the quadratic function. Transformations and dilations of quadratic functions are explored.			Modules	Worked Examples	Peer Analysis	Talk the Talk	Technology
Chapter	**Lesson Title**	**Key Math Objective**	**CCSS**	**Key Terms**					
12.1	Up and Down or Down and Up Exploring Quadratic Functions	• Model real-world problems using quadratic functions. • Analyze tables, graphs, and equations for quadratic functions. • Use the Distributive Property to write a quadratic equation in standard form. • Compare graphs of quadratic functions. • Use a graphing calculator to determine the absolute minimum or absolute maximum of a quadratic function.	A.CED.1 A.CED.2 F.IF.4	• Standard form (general form) of a quadratic function • Parabola	•	•		•	•
12.2	Just U and I Comparing Linear and Quadratic Functions	• Identify linear and quadratic functions from multiple representations. • Compare graphs, tables, and equations for linear and quadratic functions. • Analyze graphs of linear and quadratic functions. • Determine if a function is linear or quadratic by analyzing the first and second differences.	A.SSE.1 A.CED.1 A.CED.2 F.IF.4 F.IF.6 F.LE.1.a	• Leading coefficient • Second differences				•	

12.3	Walking the ... Curve? Domain, Range, Zeros, and Intercepts	• Describe the domain and range of quadratic functions. • Determine the x-intercept(s) of a graph of a quadratic function. • Understand the relationship of the zeros of a quadratic function and the x-intercepts of its graph. • Analyze quadratic functions to determine intervals of increase and decrease. • Solve a quadratic function graphically.	A.SSE.1 A.CED.1 A.CED.2 F.IF.4 F.IF.5 F.IF.7a	• Vertical motion model • Zeros • Interval • Open interval • Closed interval • Half-closed interval • Half-open interval		•			•
12.4	Are You Afraid of Ghosts? Factored Form of a Quadratic Function	• Factor the greatest common factor from an expression. • Write a quadratic function in factored form. • Determine the x-intercepts from a quadratic function written in factored form. • Determine an equation of a quadratic function given its x-intercepts.	A.SSE.1.a A.SSE.3.a A.CED.1 A.CED.2 F.IF.4 F.IF.7a	• Factor an expression • Factored form		•	•		•
12.5	Just Watch that Pumpkin Fly! Investigating the Vertex of a Quadratic Function	• Interpret parts of a quadratic function in terms of a problem situation. • Use a calculator to determine the x-intercept(s), y-intercept, and absolute maximum or minumum of a quadratic function. • Solve a quadratic function graphically. • Determine the vertex of a quadratic function. • Use symmetric points to determine the location of the vertex of a parabola. • Use the vertex to determine symmetric points on a parabola	A.SSE.1.a F.IF.4 F.IF.7a	• Vertex • Axis of symmetry				•	•

12.6	The Form is "Key" Vertex Form of a Quadratic Function	• Determine key characteristics of parabolas using a graphing calculator. • Determine key characteristics of parabolas given their equations in standard form. • Determine key characteristics of parabolas given their equations in factored form. • Determine key characteristics of parabolas given their equations in vertex form. • Write equations of parabolas given key characteristics of their graphs.	A.SSE.1.a F.IF.4 F.IF.7.a	• Vertex form			•	•	•
12.7	More Than Meets the Eye Transformations of Quadratic Functions	• Translate quadratic functions. • Reflect quadratic functions. • Dilate quadratic functions. • Write equations of quadratic functions given multiple transformations. • Graph quadratic functions given multiple transformations. • Identify multiple transformations given equations of quadratic functions.	F.BF.3 F.IF.7a	• Vertical dilation • Dilation factor					•

13	Polynomials and Quadratics	This chapter introduces operations with polynomials, including factoring quadratic trinomials. Quadratic equations are solved graphically, by factoring, and by completing the square.			Modules	Worked Examples	Peer Analysis	Talk the Talk	Technology
Chapter	**Lesson Title**	**Key Math Objective**	**CCSS**	**Key Terms**					
13.1	Controlling the Population Adding and Subtracting Polynomials	• Recognize polynomial expressions. • Identify monomials, binomials, and trinomials. • Identify the degree of a term and the degree of a polynomial. • Write polynomial expressions in standard form. • Add and subtract polynomial expressions. • Graph polynomial functions and understand the connection between the graph of the solution and the algebraic solution.	A.SSE.1.a A.APR.1 A.CED.1 F.BF.1.b A.CED.2	• Polynomial • Term • Coefficient • Monomial • Binomial • Trinomial • Degree of a term • Degree of a polynomial		•	•		•
13.2	They're Multiplying--Like Polynomials! Multiplying Polynomials	• Model the multiplication of a binomial by a binomial using algebra tiles. • Use multiplication tables to multiply binomials. • Use the Distributive Property to multiply polynomials.	A.APR.1	N/A	•	•	•		•
13.3	What Factored Into It? Factoring Polynomials	• Factor polynomials by determining the greatest common factor. • Factor polynomials by using multiplication tables.	A.SSE.3.a A.APR.1	N/A		•	•	•	
13.4	Zeroing In Solving Quadratics by Factoring	• Solve quadratic equations and functions using factoring. • Connect the zeros of a function to the x-intercepts of a graph. • Determine the roots of quadratic equations.	A.SSE.3.a A.REI.4.b	• Zero Product Property • Converse of Multiplication Property of Zero • Roots	•	•			

13.5	What Makes You So Special? Special Products	• Identify and factor the difference of two squares. • Identify and factor perfect square trinomials. • Solve quadratic equations and functions using factoring. • Identify and factor the difference of two cubes. • Identify and factor the sum of cubes.	A.SSE.2 A.SSE.3.a	• Difference of two squares • Perfect square trinomial • Difference of two cubes • Sum of two cubes			•	•	
13.6	Could It Be Groovy to be a Square? Approximating and Rewriting Radicals	• Determine the square root of perfect squares. • Determine the approximate square root of given values. • Determine the exact value of a square root of given values. • Rewrite radicals by extracting perfect squares.	N.RN.2 A.CED.1 A.REI.4.b	• Square root • Positive square root • Principal square root • Negative square root • Extract the square root • Radical expression • Radicand		•	•		
13.7	Another Method Completing the Square	• Determine the roots of a quadratic equation by completing the square. • Complete the square geometrically and algebraically.	A.SSE.3.b A.REI.4.b	• Completing the square	•	•			

14	Solving Quadratic Equations and Inequalities	This chapter introduces the quadratic formula and emphasizes choosing an appropriate method to solve quadratic equations. Quadratic inequalities are solved using a coordinate plane, and then an algebraic strategy is introduced. Systems of equations involving one or more quadratic equations are solved.			Modules	Worked Examples	Peer Analysis	Talk the Talk	Technology
Chapter	**Lesson Title**	**Key Math Objective**	**CCSS**	**Key Terms**					
14.1	Ladies and Gentlemen: Please Welcome the Quadratic Formula! The Quadratic Formula	• Use the Quadratic Formula to determine roots and zeros. • Derive the Quadratic Formula from a quadratic equation written in standard form. • Use the discriminant of a Quadratic Formula to determine the number of roots or zeros. • Determine the most efficient method of calculating roots or zeros.	A.CED.1 A.CED.2 A.REI.4.a A.REI.4.b	• Quadratic Formula • Discriminant		•	•		•
14.2	It's Watching and Tracking! Using a Calculator-Based Ranger to Model Quadratic Movement	• Predict the graph of a ball being tossed. • Use a calculator-based ranger (CBR) to graph the trajectory of an item. • Attempt to replicate a trajectory that is very similar to the graph of a quadratic function.	A.REI.4.b F.IF.7.a	• Quadratic regression • Coefficient of determination					•
14.3	They're A Lot More Than Just Sparklers! Solving Quadratics Inequalities	• Use the Quadratic Formula to solve quadratic inequalities.	A.CED.1 A.CED.2 A.REI.4.b	N/A		•	•		
14.4	You Must Have a System Systems of Quadratic Equations	• Solve systems of a linear equation and a quadratic equation. • Solve systems of two quadratic equations.	A.REI.7 A.CED.1 A.CED.2	N/A	•				

15	Real Number Systems	This chapter begins by reviewing the real number system and then move to introducing the imaginary and ultimately the complex number system. Using the powers of exponents rules, students discover the necessity of the number i. This discovery leads to students exploring whether quadratic functions have one, two, or no real roots.			Modules	Worked Examples	Peer Analysis	Talk the Talk	Technology
Chapter	**Lesson Title**	**Key Math Objective**	**CCSS**	**Key Terms**					
15.1	The Real Numbers … For Realsies! The Numbers of the Real Number System	• Define sets of natural numbers, whole numbers, integers, rational numbers, irrational numbers, and real numbers. • Determine under which operations different sets of number are closed. • Create a Venn diagram to show how different number sets are related. • Determine which equations can be solved using different number sets. • Write repeating decimals as fractions.	N.RN.3	• Natural numbers • Whole numbers • Closed (closure) • Counterexample • Integers • Rational numbers • Irrational numbers • Real numbers • Venn diagram	•	•	•		
15.2	Getting Real, and Knowing How Real Number Properties	• Learn set notation. • Make statements about real number properties using set notation. • Identify the properties of the real number system including: commutative, associative, distributive, additive identity, multiplicative identity, additive inverse, and multiplicative inverse.	N.RN.3	N/A				•	

15.3	Imagine the Possibilities Imaginary and Complex Numbers	• Determine powers of i. • Simplify expressions involving imaginary numbers. • Understand properties of the set of complex numbers. • Determine the number sets to which numbers belong.	N.RN.1 N.RN.2 N.CN.1	• Exponentiation • The number i • Imaginary numbers • Pure imaginary number • Complex numbers • Real part of a complex number • Imaginary part of a complex number	•	•			
15.4	It's Not Complex … But It's Really Not Difficult Complex Number Operations	• Calculate powers of i. • Interpret the real numbers as part of the complex number system. • Add, subtract, and multiply complex numbers. • Add, subtract, and multiply complex polynomial expressions. • Understand that the product of complex conjugates is a real number. • Rewrite quotients of complex numbers.	N.CN.1 N.CN.2 N.CN.3(+) N.CN.8(+)	• The imaginary number i • Principal square root of a negative number • Set of imaginary numbers • Pure imaginary number • Set of complex numbers • Real part of a complex number • Imaginary part of a complex number • Complex conjugates • Monomial • Binomial • Trinomial		•	•		
15.5	It's Not Complex--Just Its Solutions Are Complex! Solving Quadratics with Complex Solutions	• Calculate complex roots of quadratic equations and complex zeros of quadratic functions. • Interpret complex roots of quadratic equations and complex zeros of quadratic functions. • Determine whether a function has complex solutions from a graph and from an equation in radical form. • Determine the number of roots of a quadratic equation from a graph and from an equation in radical form.	A.REI.4.b N.CN.1 N.CN.7	• Imaginary roots • Imaginary zeros			•	•	

16	Other Functions and Inverses	This chapter focuses on piecewise functions, absolute value functions, and step functions. Inverses of linear functions are introduced graphically, numerically, and algebraically, which is thene xtended to include non-linear functions.			Modules	Worked Examples	Peer Analysis	Talk the Talk	Technology
Chapter	**Lesson Title**	**Key Math Objective**	**CCSS**	**Key Terms**					
16.1	I Graph In Pieces Linear Piecewise Functions	• Create graphs of linear piecewise functions. • Write linear piecewise functions from scenarios, tables, and graphs. • Compare a linear absolute value function to a linear piecewise function.	F.IF.4 F.IF.5 F.IF.7b	N/A					•
16.2	Step By Step Step Functions	• Write and graph step function problem situations. • Analyze the graphs of step functions. • Use technology to graph a step function.	F.IF.4 F.IF.5 F.IF.7b	• Step function • Greatest integer function (floor function) • Least integer function (ceiling function)		•	•		•
16.3	The Inverse Undoes what a Function Does Inverses of Linear Functions	• Determine the inverse of a given situation using words. • Determine the inverse of a function numerically using a table. • Determine the inverse of a function using algebra. • Determine the inverse of a function using graphical representations. • Calculate compositions of functions. • Use compositions of functions to determine whether functions are inverses.	A.CED.1 A.CED.4 F.IF.1 F.IF.2 F.BF.1.a F.BF.4.a G.BF.4.b	• Inverse operation • Inverse function • Composition of functions	•	•	•	•	

16.4	Taking the Egg Plunge! Inverses of Non-Linear Functions	• Determine the inverse of a linear or non-linear function using a table of values. • Determine the inverse of a linear or non-linear function using a graph. • Determine whether given functions are one-to-one functions. • Identify types of functions that are always, sometimes, or never one-to-one functions. • Determine the equation of the inverse of a quadratic function. • Determine the inverse of a quadratic function in terms of a problem situation.	A.CED.4 F.IF.1 F.IF.2 F.IF.5 F.IF.7 F.BF.4.a	• One-to-one function • Restrict the domain		•	•		•

17	Shapes on the Coordinate Plane	In this chapter, students analyze geometric figures on the coordinate plane, including parallel and perpendicular lines, triangles, and quadrilaterals. Algebraic connections are made throughout the chapter.			Modules	Worked Examples	Peer Analysis	Talk the Talk	Technology
Chapter	**Lesson Title**	**Key Math Objective**	**CCSS**	**Key Terms**					
17.1	It's All About the Slope Parallel and Perpenddicular Lines on the Coordinate Plane	• Determine whether lines are parallel. • Identify and write the equations of lines parallel to given lines. • Determine whether lines are perpendicular. • Identify and write the equations of lines perpendicular to given lines. • Identify and write the equations of horizontal and vertical lines. • Calculate the distance between a line and a point not on a line.	G.CO.1 G.GPE.4 G.GPE.5 G.MG.1	• Point-slope form	•			•	
17.2	Hey I Know That Triangle! Classifying Triangles on the Coordinate Plane	• Determine the coordinates of a third vertex of a triangle, given the coordinates of two vertices and a decription of the triangle. • Classify a triangle given the locations of its vertices on a coordinate plane.	G.GPE.5 G.MG.1	N/A	•		•		
17.3	And I Know That Quadrilateral Too! Classifying Quadrilaterals on the Coordinate Plane	• Determine the coordinates of a fourth vertex, given the coordinates of three vertices of a quadrilateral and a description of the quadrilateral. • Classify a quadrilateral given the locations of its vertices on a coordinate plane.	G.GPE.4 G.GPE.5 G.MG.1 G.MG.3	N/A	•				

18	Circles and Parabolas	This chapter explores circles, polygons,a nd parabolas on the coordinate plane. Key characteristics are used to write equations for these geometric figures.			Modules	Worked Examples	Peer Analysis	Talk the Talk	Technology
Chapter	**Lesson Title**	**Key Math Objective**	**CCSS**	**Key Terms**					
18.1	The Coordinate Plane Circles and Polygons on the Coordinate Plane	• Apply theorems to circles on the coordinate plane. • Classify polygons on the coordinate plane. • Use midpoints to determine characteristics of polygons. • Distinguish between showing something is true under certain conditions, and proving it is always true.	G.GPE.4 G.GPE.5 G.MG.1	N/A	•				
18.2	Bring on the Algebra Deriving the Equation for a Circle	• Use the Pythagorean Theorem to derive the equation of a circle given the center and radius. • Distinguish between the equation of a circle written in general form and the equation of a circle written in standard form (center-radius form) • Complete the square to determine the center and radius of a circle.	G.GPE.1 G.SRT.8	N/A	•	•			
18.3	Is That Point on the Circle? Determining Points on a Circle	• Use the Pythagorean Theorem to determine if a point lies on a circle on the coordinate plane given the circle's center at the origin, the radius of the circle, and the coordinates of the point. • Use the Pythagorean Theorem to determine if a point lies on a circle on the coordinate plane given the circle's center not at the origin, the radius of the circle, and the coordinates of the point. • Use rigid motion to transform a circle about the coordinate plane to determine if a point lies on a circle's image given the pre-image's center, radius, and the coordinates of the point. •Determine the coordinates of a point that lies on a circle given the location of the center point and the radius of the circle. • Use the Pythagorean Theorem to determine the coordinates of a point that lies on a circle.	G.SRT.8 G.GPE.4 G.MG.1	N/A	•		•		
18.4	The Parabola Equation of a Parabola	• Derive the equation of a parabola given the focus and directrix.	G.GPE.2	• Locus of points • Parabola • Focus of a parabola • Directrix of a parabola • General form of a parabola • Standard form of a parabola • Axis of symmetry • Vertex of a parabola • Concavity	•			•	
18.5	Simply Parabolic More with Parabolas	• Solve problems using characteristics of parabolas.	G.GPE.2	N/A	•				

19	Probability	This chapter investigates compound probability with an emphasis toward modeling and analyzing sample spaces to determine rules for calculating probabilities in different situations. Students explore various probability models and calculate compound probabilities with independent and dependent events in a variety of problem situations. Students use technology to run experimental probability simulations.			Modules	Worked Examples	Peer Analysis	Talk the Talk	Technology
Chapter	**Lesson Title**	**Key Math Objective**	**CCSS**	**Key Terms**					
19.1	These Are a Few of My Favorite Things Modeling Probability	• List the sample space for situations involving probability. • Construct a probability model for a situation. • Differentiate between uniform and non-uniform probability models.	S.CP.1	• Outcome • Sample space • Event • Probability • Probability model • Uniform probability model • Complement of an event • Non-uniform probability model	•		•	•	
19.2	It's in the Cards Compound Sample Spaces	• Develop a rule to determine the total number of outcomes in a sample space without listing each event. • Classify events as independent or dependent. • Use the Counting Principle to calculate the size of sample spaces.	S.CP.1	• Tree diagram • Organized list • Set • Element • Disjoint sets • Intersecting sets • Independent events • Dependent events • Counting Principle	•	•	•	•	
19.3	And? Compound Probability with "And"	• Determine the probability of two or more independent events. • Determine the probability of two or more dependent events.	S.CP.2 S.CP.8	• Compound event • Rule of Compound Probability involving "and"	•		•	•	
19.4	Or? Compound Probability with "Or"	• Determine the probability of one or another independent events. • Determine the probability of one or another dependent events.	S.CP.7	• Addition Rule for Probability	•		•		

19.5	And, Or, and More! Calculating Compound Probabilty	• Calculate compound probabilities with and without replacement.	S.CP.2 S.CP.8	N/A						
19.6	Do You Have a Better Chance of Winning the Lottery or Getting Struck by Lightning? Investigate Magnitude through Theoretical Probability and Experimental Probability	• Simulate events using the random number generator on a graphing calculator. • Compare experimental and theoretical probability.	S.IC.2	• Simulation • Theoretical probability • Experimental probability				•	•

20	More Probability and Counting	This chapter addresses more compound probability concepts and more counting strategies. Compound probability concepts are presented using two-way frequency tables, conditional probability, and independent trials. The counting strategies include permutations, permutations with repetition, circular permutations, and combinations. The last lesson focuses on geometric probability and expected value.			Modules	Worked Examples	Peer Analysis	Talk the Talk	Technology
Chapter	**Lesson Title**	**Key Math Objective**	**CCSS**	**Key Terms**					
20.1	Left, Left, Left, Right, Left Compound Probability for Data Displayed in Two-Way Tables	• Determine probabilities of compound events for data displayed in two-way tables. • Determine relative frequencies of events.	S.CP.4	• Two-way table • Frequency table • Two-way frequency table • Contingency table • Categorical data • Qualitative data • Relative frequency • Two-way relative frequency table	•		•		
20.2	It All Depends Conditional Probability	• Use conditional probability to determine the probability of an event given that another event has occurred. • Use conditional probability to determine whether or not events are independent.	S.CP.3 S.CP.5 S.CP.6	• Conditional probability	•	•	•		
20.3	Counting Permutations and Combinations	• Use permutations to calculate the size of sample spaces. • Use combinations to calculate the size of sample spaces. • Use permutations to calculate probabilities. • Use combinations to calculate probabilities. • Calculate permutations with repeated elements. • Calculate circular permutations.	S.CP.9	• Factorial • Permutation • Combination • Circular permutation	•	•	•	•	•

20.4	Trials Independent Trials	• Calculate the probability of two trials of two independent events. • Calculate the probability of multiple trials of two independent events. • Determine the formula for calculating the probability of multiple trials of independent events.	S.CP.9	N/A	•		•		
20.5	To Spin or Not to Spin Expected Value	• Determine geometric probability. • Calculate the expected value of an event.	S.MD.6 S.MD.7	• Geometric probability • Expected value	•		•		