GEOMETRY CURRICULUM

Course 17025

The study of plane geometry has two points of emphasis. The first is to learn and apply numerous geometric properties to real world situations. The second is to provide students with an opportunity to develop organizational abilities and both deductive and inductive reasoning skills. Course content begins with a single point and expands to include lines, angles, polygons, circles, and solids. Congruency, similarity, and inequality are investigated and proofs are developed through the application of postulates, definitions, and theorems. Students will develop skills in the use of geometer sketchpad and also the compass and straightedge constructions. Additional topics include the concepts of coordinate geometry, transformations, and the perimeter, area, and volume of plane figures and solids. Daily homework is a course requirement.

GEOMETRY OUTLINE:

Goals	Skills	Summative Assessments	Time Frame	Main Resources
• Identify and/or use parts of circles and segments associated with circles, spheres, and cylinders. • Recognize and/or apply properties of angles, polygons, and polyhedrons. • Describe how a change in one dimension of a two-dimensional figure affects other measurements of that figure. • Apply probability to practical situations. • Describe how a change in one dimension of a three-dimensional figure affects other measurements of that figure.	• Use properties of congruence, correspondence, and similarity in problem-solving settings involving two- and three-dimensional figures. • Write formal proofs and/or use logic statements to construct or validate arguments. • Solve problems involving right triangles. • Solve problems using analytic geometry. • Use and/or compare measurements of angles. • Use and/or develop procedures to determine or describe measures of perimeter, circumference, and/or area. (May require conversions within the same system.) • Use and/or develop procedures to determine or describe measures of surface area and/or volume.	Mid-year and End of Year Benchmark Assessments,	1-year	Glencoe Geometry ©2014

GEOMETRY MAP:

TIME FRAME	BIG IDEAS	CONCEPTS	ESSENTIAL QUESTIONS	STANDARDS	OBJECTIVES	DIFFERENTIATION	ASSESSMENT
Chapter 1: Tools of Geometry (Week 1-3)	• We measure to compare objects and find relationships. Relationships help us define our world through comparison	1-1: Points, Lines and Planes Extend 1-1: Describing what you see 1-2: Linear Measure Extend 1-2: Precision and Accuracy 1-3: Distance and Midpoints 1-4: Angle Measure 1-5: Angle Relationships Extend 1-5: Constructing Perpendiculars 1-6: Two-Dimensional Figures Extend 1-6: Geom Software Lab: Two-Dimensional Figures 1-7: Three-Dimensional Figures Extend 1-7: Geom Lab: Two-Dimensional Representations of Three-Dimensional Objects	• Why do we measure? (Sample answer: Measurements provide a quantifiable way to describe real-world quantities.) • How does what we measure influence how we measure? • (Sample answer: What we measure influences the type of tool that is used. For example, to measure an angle, you would use a protractor. To measure a line segment, you could use a ruler. Another factor to consider is the size of the object being measured. For example, to measure something very small or short, you could use a ruler. To measure something large or long, you could use a tape measure.) • How do you know what units to use when measuring? • (Sample answer: When dealing with length, you are only dealing with one dimension, so you could use units such as feet or meters. When dealing with area, you are dealing with	CC.2.3.HS.A.1 Use geometric figures and their properties to represent transformations in the plane. CC.2.3.HS.A.11 Apply coordinate geometry to prove simple geometric theorems algebraically. CC.2.3.HS.A.12 Explain volume formulas and use them to solve problems. CC.2.3.HS.A.14 Apply geometric concepts to model and solve real world problems. CC.2.3.HS.A.4 Apply the concept of congruence to create geometric constructions. G.1.3.1.1 Identify and/or use properties of congruent and similar polygons or solids. G.1.3.1.2 Identify and/or use proportional relationships in similar figures. G.2.1.2.1 Calculate the distance and/or midpoint	• 1.1 Identify and model points, lines, and planes. Identify intersecting lines and planes • Extend 1.1 Use correct mathematical terminology to describe geometric figures • 1.2 Measure segments. Calculate with measures • Extend 1.2 Determine precision of measurements. Determine accuracy of measurements • 1.3 Find the distance between two points. Find the midpoint of a segment • 1.4 Measure and classify angles. Identify and use congruent angles and the bisector of an angle • 1.5 Identify and use special pairs of angles. Identify perpendicular lines • Extend 1.5 Construct perpendiculars • 1.6 Identify and name polygons. Find perimeter, circumference, and area of two-dimensional figures Extend 1.6 Use The Geometerâ€™s	• Leveled Worksheets (Study Guide and Intervention, Skills Practice, Practice, Word Problems Practice, Enrichment.)	Homework (Teacher Editions, Suggested HW at beginning of each problem set) Participation Quiz (Mid Chapter Quiz/Test) Tests (Form 1, 2A, 2B, 2C)

			two dimensions, so you could use square units such as square feet or square meters. When dealing with volume, you are dealing with three dimensions, so you could use cubic units such as cubic feet or cubic meters.)	between 2 points on a number line or on a coordinate plane. G.2.1.2.2 Relate slope to perpendicularity and/or parallelism (limit to linear algebraic equations). G.2.1.2.3 Use slope, distance and/or midpoint between 2 points on a coordinate plane to establish properties of a 2-dimensional shape. G.2.1.3.1 Apply the concept of the slope of a line to solve problems. G.2.2.4.1 Use area models to find probabilities. G.2.3.1.1 Calculate the surface area of prisms, cylinders, cones, pyramids and/or spheres. Formulas are provided on the reference sheet. G.2.3.1.2 Calculate the volume of prisms, cylinders, cones, pyramids and/or spheres. Formulas are provided on the reference sheet. G.2.3.1.3 Find the measurement of a missing length given the surface area or	Sketchpad to draw polygons and find side lengths, angle measures, and perimeter • 1.7 Identify and name three-dimensional figures. Find surface area and volume • Extend 1.7 Use orthographic views and nets to represent and construct three-dimensional figures		

				volume.			
Chapter 2: Reasoning and Proof (Week 3-6)	• Thinking logically provides us with a way to accurately navigate confusing situations in life. • Arguments are Logical if they link true statements, each relying on the last to arrive at a conclusion. • Inductive reasoning is used when making a conjecture based on observed patterns. To reach a logical conclusion, deductive reasoning should be used because it involves using known facts, rules, definitions, postulates, and theorems	2-1: Inductive Reasoning and Conjecture 2-2: Logic 2-3: Conditional Statements Extend 2-3: Geom Lab: Bi-conditional Statements 2-4: Deductive Reasoning Explore 2-5: Geom Lab: Necessary and Sufficient Conditions 2-5: Postulates and Paragraph Proofs 2-6: Algebraic Proof 2-7: Proving Segment Relationships 2-8: Proving Angle Relationships	• Why is it important to be able to think logically? • (Sample answer: On a daily basis, we are presented with information and arguments from various sources such as television commercials and politicians. Many of these arguments are not valid. To analyze these arguments or to present valid arguments, we must be able to think logically and form valid conclusions.) • What makes a logical argument? • (Sample answer: a series of true statements that are given in order to reach a valid conclusion.) • How do you know when to use inductive or deductive reasoning? • (Sample answer: Inductive reasoning is used when making a conjecture based on observed patterns. To reach a logical conclusion, deductive reasoning should be used because it involves using known facts, rules, definitions, postulates, and theorems)	CC.2.3.HS.A.14 Apply geometric concepts to model and solve real world problems. CC.2.3.HS.A.3 Verify and apply geometric theorems as they relate to geometric figures. CC.2.3.HS.A.4 Apply the concept of congruence to create geometric constructions. G.1.2.1.1 Identify and/or use properties of triangles G.1.2.1.2 Identify and/or use properties of quadrilaterals G.1.2.1.3 Identify and/or use properties of isosceles and equilateral triangles. G.1.2.1.4 Identify and/or use properties of regular polygons G.1.2.1.5 Identify and/or use properties of pyramids and prisms. G.1.3.2.1 Write, analyze, complete, or identify formal proofs (e.g., direct and/or indirect proofs/proofs by contradiction).	• 2.1 Make conjectures based on inductive reasoning. • Find counterexamples • 2.2 Determine truth values of negations, conjunctions, and disjunctions and represent them using Venn diagrams. • Find counterexamples • 2.3 Analyze statements in if-then form. • Write converses, inverses, and contrapositives • Extend 2.3 Learn to identify, use, and judge the validity of bi-conditional statements • 2.4 Use the Law of Detachment. • Use the Law of Syllogism • Explore 2.5 Determine necessary and sufficient conditions for a statement to be true • 2.5 Identify and use basic postulates about points, lines, and planes. • Write paragraph proofs • 2.6 Use algebra to write two-column proofs. • Use properties of equality to write geometric proofs • 2.7 Write proofs involving segment	• Leveled Worksheets (Study Guide and Intervention, Skills Practice, Practice, Word Problems Practice, Enrichment.)	Homework (Teacher Editions, Suggested HW at beginning of each problem set) Participation Quiz (Mid Chapter Quiz/Test) Tests (Form 1, 2A, 2B, 2C)

				G.2.2.1.1 Use properties of angles formed by intersecting lines to find the measures of missing angles. G.2.2.1.2 Use properties of angles formed when two parallel lines are cut by a transversal to find the measures of missing angles. G.2.2.2.1 Estimate area, perimeter or circumference of an irregular figure. G.2.2.2.2 Find the measurement of a missing length given the perimeter, circumference, or area. G.2.2.2.3 Find the side lengths of a polygon with a given perimeter to maximize the area of the polygon. G.2.2.2.4 Develop and/or use strategies to estimate the area of a compound/composite figure. G.2.2.2.5 Find the area of a sector of a circle. G.2.2.4.1 Use area models to find probabilities. G.2.3.1.1	addition. • Write proofs involving congruence • 2.8 Write proofs involving supplementary and complementary angles. • Write proofs involving congruent and right angles		

				Calculate the surface area of prisms, cylinders, cones, pyramids and/or spheres. Formulas are provided on the reference sheet. G.2.3.1.2 Calculate the volume of prisms, cylinders, cones, pyramids and/or spheres. Formulas are provided on the reference sheet. G.2.3.1.3 Find the measurement of a missing length given the surface area or volume.			
Chapter 3: Parallel and Perpendicular Lines (Week 6-9)	• Points, Lines and Planes can help us explain much more complicated ideas, like angle pairs, and relationships in the real world.	3-1: Parallel Lines and Transversals Explore 3-2: Geom Software Lab: Angles and Parallel Lines 3-2: Angles and Parallel Lines Explore 3-3: Graphing Tech Lab: Investigating Slope 3-3: Slopes of Lines 3-4: Equations of Lines Extend 3-4: Geom Lab: Equations of Perpendicular Bisectors 3-5: Proving Lines Parallel 3-6: Perpendiculars and Distance	• Why do we have undefined terms such as point and line? (Sample answer: We have to start somewhere, so we start with a set of terms with meanings that are accepted as true.) • How can we use undefined terms? (Sample answer: We can use them to define more terms. Then, we can use these definitions to write postulates and theorems and to develop properties.) • How are lines used to define angle pairs? (Sample answer: The intersections of different types and numbers of lines are used to define	CC.2.3.HS.A.1 Use geometric figures and their properties to represent transformations in the plane. CC.2.3.HS.A.11 Apply coordinate geometry to prove simple geometric theorems algebraically. CC.2.3.HS.A.14 Apply geometric concepts to model and solve real world problems. CC.2.3.HS.A.3 Verify and apply geometric theorems as they relate to geometric figures. CC.2.3.HS.A.4 Apply the concept of congruence to create	• 3-1 Identify the relationship between two lines or two planes • Name angle pairs formed by parallel lines and transversals • Explore 3-2 Use Geometer's Sketchpad to investigate angles formed by two parallel lines and a transversal • 3-2 Use theorems to determine the relationships between specific pairs of angles • Use algebra to find angle measurements • Explore 3-3 Use a graphing calculator to investigate slope • 3-3 Find slopes of Lines	• Leveled Worksheets (Study Guide and Intervention, Skills Practice, Practice, Word Problems Practice, Enrichment.)	Homework (Teacher Editions, Suggested HW at beginning of each problem set) Participation Quiz (Mid Chapter Quiz/Test) Tests (Form 1, 2A, 2B, 2C)

			certain angle pairs. For example, the intersection of two lines defines linear, supplementary, complementary, and vertical angles. The intersections of two or more coplanar lines define interior, exterior, and corresponding angles.) • Why do we name angle pairs? (Sample answer: Once angle pairs are named, they can be used to write postulates, prove theorems, and solve problems.) • Why do we describe relationships between lines? (Sample answer: to associate properties with the lines.) • How can pairs of lines be named? (Sample answers: parallel, perpendicular, skew, coplanar.)	geometric constructions. G.1.2.1.1 Identify and/or use properties of triangles G.1.2.1.2 Identify and/or use properties of quadrilaterals G.1.2.1.3 Identify and/or use properties of isosceles and equilateral triangles. G.1.2.1.4 Identify and/or use properties of regular polygons G.1.2.1.5 Identify and/or use properties of pyramids and prisms. G.1.3.1.1 Identify and/or use properties of congruent and similar polygons or solids. G.1.3.1.2 Identify and/or use proportional relationships in similar figures. G.1.3.2.1 Write, analyze, complete, or identify formal proofs (e.g., direct and/or indirect proofs/proofs by contradiction). G.2.1.2.1 Calculate the distance and/or midpoint between 2 points on a	• Use slope to identify parallel and perpendicular lines • 3-4 Write an equation of a line given information about its graph • Solve problems by writing equations • Extend 3-4 Explore figures on a coordinate plane • 3-5 Recognize angle pairs that occur with parallel lines • Prove that two lines are parallel • 3-6 Find the distance between a point and a line • Find the distance between two parallel lines		

				number line or on a coordinate plane. G.2.1.2.2 Relate slope to perpendicularity and/or parallelism (limit to linear algebraic equations). G.2.1.2.3 Use slope, distance and/or midpoint between 2 points on a coordinate plane to establish properties of a 2-dimensional shape. G.2.1.3.1 Apply the concept of the slope of a line to solve problems. G.2.2.1.1 Use properties of angles formed by intersecting lines to find the measures of missing angles. G.2.2.1.2 Use properties of angles formed when two parallel lines are cut by a transversal to find the measures of missing angles. G.2.2.2.1 Estimate area, perimeter or circumference of an irregular figure. G.2.2.2.2 Find the measurement of a missing length given the perimeter, circumference, or area.			

				G.2.2.2.3 Find the side lengths of a polygon with a given perimeter to maximize the area of the polygon. G.2.2.2.4 Develop and/or use strategies to estimate the area of a compound/composite figure. G.2.2.2.5 Find the area of a sector of a circle. G.2.2.4.1 Use area models to find probabilities. G.2.3.1.1 Calculate the surface area of prisms, cylinders, cones, pyramids and/or spheres. Formulas are provided on the reference sheet. G.2.3.1.2 Calculate the volume of prisms, cylinders, cones, pyramids and/or spheres. Formulas are provided on the reference sheet. G.2.3.1.3 Find the measurement of a missing length given the surface area or volume.			
Chapter 4: Congruent Triangles (Week 10-12)	• In congruent figures, all corresponding parts are	4-1: Classifying Triangles Explore 4-2: Geom Lab: Angles of	• How can you compare two objects? (Sample answer: You can	CC.2.3.HS.A.1 Use geometric figures and their properties to represent transformations in the	• 4-1 Identify and classify triangles by angle measures and side measures	• Leveled Worksheets (Study Guide and Intervention, Skills	Homework (Teacher Editions, Suggested HW at beginning of

	congruent.	Triangles 4-2: Angles of Triangles 4-3: Congruent Triangles 4-4: Proving Triangles Congruent-SSS, SAS Extend 4-4: Geom Lab: Proving Constructions 4-5: Proving Triangles Congruent-ASA, AAS Extend 4-5: Geom Lab: Congruence in Right Triangles 4-6: Isosceles and Equilateral Triangles Explore 4-7: Graphing Tech Lab: Congruence Transformations 4-7: Congruence Transformations 4-8: Triangles and Coordinate Proof	compare their characteristics, such as size, color, and shape.) • How can you tell if two objects are congruent? (Sample answer: You can measure all of the parts of each object and then compare them.) • How can you tell if two triangles are congruent? (Sample answer: You can measure all of the sides and angles of each triangle, and then compare them to see if the corresponding parts are congruent.) • Where can congruence transformations be found in everyday life? (Sample answer: Video games often use translations and rotations; the image of a person in a mirror is a reflection; the movement of turning a puzzle piece around is a rotation.)	plane. CC.2.3.HS.A.11 Apply coordinate geometry to prove simple geometric theorems algebraically. CC.2.3.HS.A.2 Apply rigid transformations to determine and explain congruence. CC.2.3.HS.A.3 Verify and apply geometric theorems as they relate to geometric figures. CC.2.3.HS.A.4 Apply the concept of congruence to create geometric constructions. CC.2.3.HS.A.6 Verify and apply theorems involving similarity as they relate to plane figures. G.1.2.1.1 Identify and/or use properties of triangles .1.2.1.2 Identify and/or use properties of quadrilaterals G.1.2.1.3 Identify and/or use properties of isosceles and equilateral triangles. G.1.2.1.4 Identify and/or use properties of regular polygons	• Explore 4-2 Find the relationships among the measures of the interior angles of a triangle • 4-2 Apply the Triangle Angle-Sum Theorem • Apply the Exterior Angle Theorem • 4-3 Name and use corresponding parts of congruent polygons • Prove triangles congruent using the definition of congruence • 4-4 Use the SSS and SAS Postulates to test for triangle congruence • Extend 4-4 Prove constructions using congruent measurements • 4-5 Use the ASA and AAS Postulates to test for triangle congruence • Extend 4-5 Explore congruence in right triangles • 4-6 Use properties of isosceles and equilateral triangles • Explore 4-7 Use a graphing calculator to perform transformations on triangles in the coordinate plane • Test congruence of transformations of triangles • 4-7 Identify reflections, translations, and rotations • Verify congruence	Practice, Practice, Word Problems Practice, Enrichment.)	each problem set) Participation Quiz (Mid Chapter Quiz/Test) Tests (Form 1, 2A, 2B, 2C)

				G.1.2.1.5 Identify and/or use properties of pyramids and prisms. G.1.3.1.1 Identify and/or use properties of congruent and similar polygons or solids. G.1.3.1.2 Identify and/or use proportional relationships in similar figures. G.1.3.2.1 Write, analyze, complete, or identify formal proofs (e.g., direct and/or indirect proofs/proofs by contradiction). G.2.1.2.1 Calculate the distance and/or midpoint between 2 points on a number line or on a coordinate plane. G.2.1.2.2 Relate slope to perpendicularity and/or parallelism (limit to linear algebraic equations). G.2.1.2.3 Use slope, distance and/or midpoint between 2 points on a coordinate plane to establish properties of a 2-dimensional shape. G.2.1.3.1 Apply the concept of the slope of a line to	after a congruence transformation • 4-8 Position and label triangles for use in coordinate proofs • Write coordinate proofs		

				solve problems. G.2.2.1.1 Use properties of angles formed by intersecting lines to find the measures of missing angles. G.2.2.1.2 Use properties of angles formed when two parallel lines are cut by a transversal to find the measures of missing angles. G.2.2.2.1 Estimate area, perimeter or circumference of an irregular figure. G.2.2.2.2 Find the measurement of a missing length given the perimeter, circumference, or area. G.2.2.2.3 Find the side lengths of a polygon with a given perimeter to maximize the area of the polygon. G.2.2.2.4 Develop and/or use strategies to estimate the area of a compound/composite figure. G.2.2.2.5 Find the area of a sector of a circle.			
Chapter 5: Relationships in Triangles	• There are patterns in polygons we can use to	Explore 5-1: Geom Lab: Constructing Bisectors	• What makes a triangle a triangle? (Sample answer:	CC.2.3.HS.A.14 Apply geometric concepts to model and solve real world	• Explore 5-1 Construct perpendicular	• Leveled Worksheets (Study Guide and	Homework (Teacher Editions, Suggested HW

(Week 12-15)	represent, analyze and explain situations in the real world	5-1: Bisectors of Triangles Explore 5-2: Geom Lab: Constructing Medians and Altitudes 5-2: Medians and Altitudes of Triangles 5-3: Inequalities in One Triangle Explore 5-4: Geom Lab: Matrix Logic 5-4: Indirect Proof Explore 5-5: Graphing Tech Lab: The Triangle Inequality 5-5: The Triangle Inequality 5-6: Inequalities in Two Triangles	three sides, three angles, angle measures that sum to 180.) • How are the sides and angles of a triangle related? (Sample answers: The longest side is opposite the greatest angle and the smallest side is opposite the smallest angle.) • How are the angles and/or sides of two triangles related? (Sample answer: If two sides in one triangle are congruent to two sides in another and the included angle of the first is larger than the included angle of the second, then the third side of the first is longer than the third side of the second.)	problems. CC.2.3.HS.A.3 Verify and apply geometric theorems as they relate to geometric figures. CC.2.3.HS.A.4 Apply the concept of congruence to create geometric constructions. G.1.2.1.1 Identify and/or use properties of triangles G.1.2.1.2 Identify and/or use properties of quadrilaterals G.1.2.1.3 Identify and/or use properties of isosceles and equilateral triangles. G.1.2.1.4 Identify and/or use properties of regular polygons G.1.2.1.5 Identify and/or use properties of pyramids and prisms. G.1.3.2.1 Write, analyze, complete, or identify formal proofs (e.g., direct and/or indirect proofs/proofs by contradiction). G.2.2.1.1 Use properties of angles formed by intersecting lines to find the measures of	bisectors and angle bisectors of triangles • 5-1 Identify and use perpendicular bisectors in triangles • Identify and use angle bisectors in triangles • Explore 5-2 Construct medians and altitudes of triangles • 5-2 Identify and use medians in triangles • Identify and use altitudes in triangles • 5-3 Recognize and apply properties of inequalities to the measures of the angles in a triangle • Recognize and apply properties of inequalities to the relationships between the angles and the sides of a triangle • Explore 5-4 Use matrix logic • 5-4 Write indirect algebraic proofs • Write indirect geometric proofs • Explore 5-5 Use technology to investigate triangle inequalities • 5-5 Use the Triangle Inequality Theorem to identify possible triangles • Prove triangle relationships using the Triangle Inequality Theorem • 5-6 Apply the Hinge Theorem or its converse to make	Intervention, Skills Practice, Practice, Word Problems Practice, Enrichment.)	at beginning of each problem set) Participation Quiz (Mid Chapter Quiz/Test) Tests (Form 1, 2A, 2B, 2C)

				missing angles. G.2.2.1.2 Use properties of angles formed when two parallel lines are cut by a transversal to find the measures of missing angles. G.2.2.2.1 Estimate area, perimeter or circumference of an irregular figure. G.2.2.2.2 Find the measurement of a missing length given the perimeter, circumference, or area. G.2.2.2.3 Find the side lengths of a polygon with a given perimeter to maximize the area of the polygon. G.2.2.2.4 Develop and/or use strategies to estimate the area of a compound/composite figure. G.2.2.2.5 Find the area of a sector of a circle. G.2.2.4.1 Use area models to find probabilities. G.2.3.1.1 Calculate the surface area of prisms, cylinders, cones, pyramids and/or spheres. Formulas	comparisons in two triangles • Prove triangle relationships using the Hinge Theorem or its converse		

				are provided on the reference sheet. G.2.3.1.2 Calculate the volume of prisms, cylinders, cones, pyramids and/or spheres. Formulas are provided on the reference sheet. G.2.3.1.3 Find the measurement of a missing length given the surface area or volume.			
Chapter 6: Quadrilaterals (Week 15-17)	• Quadrilaterals can be classified in many ways depending on their characteristics. These classifications can help us describe and understand real-world situations.	6-1: Angles of Polygons Extend 6-1: Spreadsheet Lab: Angles of Polygons 6-2: Parallelograms Explore 6-3: Graphing Tech Lab: Parallelograms 6-3: Tests for Parallelograms 6-4: Rectangles 6-5: Rhombi and Squares 6-6: Trapezoids and Kites	• Why do we name figures? (Sample answer: By naming a figure, we know what properties to associate with that figure. The figure could then be used to model a situation and the properties of the figure could be used to solve a problem.) • What should you consider when naming a parallelogram? (Sample answer: whether diagonals are congruent, whether diagonals are perpendicular, whether diagonals bisect opposite pairs of angles, whether sides are congruent, whether all four angles are right angles.) • Why is it helpful to have different names for quadrilaterals?	CC.2.3.HS.A.11 Apply coordinate geometry to prove simple geometric theorems algebraically. CC.2.3.HS.A.14 Apply geometric concepts to model and solve real world problems. CC.2.3.HS.A.3 Verify and apply geometric theorems as they relate to geometric figures. CC.2.3.HS.A.4 Apply the concept of congruence to create geometric constructions. G.1.2.1.1 Identify and/or use properties of triangles G.1.2.1.2 Identify and/or use properties of quadrilaterals	• 6-1 Find and use the sum of the measures of the interior angles of a polygon. • Find and use the sum of the measures of the exterior angles of a polygon. • Extend 6-1 Explore the sum of the measure of the interior and exterior angles of a polygon using a spreadsheet • 6-2 Recognize and apply the properties of the sides and angles of parallelogram • Recognize and apply the properties of the diagonals of parallelograms • Explore 6-3 Use the Cabri Junior application on a Ti-83/84 Plus graphing calculator to discover properties of parallelograms	• Leveled Worksheets (Study Guide and Intervention, Skills Practice, Practice, Word Problems Practice, Enrichment.)	Homework (Teacher Editions, Suggested HW at beginning of each problem set) Participation Quiz (Mid Chapter Quiz/Test) Tests (Form 1, 2A, 2B, 2C)

			(Sample answer: Different quadrilaterals have different associated characteristics. For example, it may be helpful to describe a quadrilateral as a square instead of a rectangle, because a square has congruent side lengths.)	G.1.2.1.3 Identify and/or use properties of isosceles and equilateral triangles. G.1.2.1.4 Identify and/or use properties of regular polygons G.1.2.1.5 Identify and/or use properties of pyramids and prisms. G.1.3.2.1 Write, analyze, complete, or identify formal proofs (e.g., direct and/or indirect proofs/proofs by contradiction). G.2.1.2.1 Calculate the distance and/or midpoint between 2 points on a number line or on a coordinate plane. G.2.1.2.2 Relate slope to perpendicularity and/or parallelism (limit to linear algebraic equations). G.2.1.2.3 Use slope, distance and/or midpoint between 2 points on a coordinate plane to establish properties of a 2-dimensional shape. G.2.1.3.1 Apply the concept of the slope of a line to solve problems.	• 6-3 Recognize the conditions that ensure a quadrilateral is a parallelogram • Prove taht a set of points form a parallelogram in the coordinate plane • 6-4 Recognize and apply properties of rectangles • Determine whether parallelograms are rectangles • 6-5 Recognize and apply properties of rhombi and squares • Determine whether quadrilaterals are rectangles, rhombi, or squares • 6-6 Recognize and apply the properties of trapezoids, including the medians of trapezoids • Recognize and apply the properties of kits		

				G.2.2.1.1 Use properties of angles formed by intersecting lines to find the measures of missing angles. G.2.2.1.2 Use properties of angles formed when two parallel lines are cut by a transversal to find the measures of missing angles. G.2.2.2.1 Estimate area, perimeter or circumference of an irregular figure. G.2.2.2.2 Find the measurement of a missing length given the perimeter, circumference, or area. G.2.2.2.3 Find the side lengths of a polygon with a given perimeter to maximize the area of the polygon. G.2.2.2.4 Develop and/or use strategies to estimate the area of a compound/composite figure. G.2.2.2.5 Find the area of a sector of a circle. G.2.2.4.1 Use area models to find probabilities. G.2.3.1.1			

				Calculate the surface area of prisms, cylinders, cones, pyramids and/or spheres. Formulas are provided on the reference sheet. G.2.3.1.2 Calculate the volume of prisms, cylinders, cones, pyramids and/or spheres. Formulas are provided on the reference sheet. G.2.3.1.3 Find the measurement of a missing length given the surface area or volume.			
Chapter 7: Proportions and Similarity (Week 18-20)	• Similar figures are dilated versions of each other, and as such are proportional. They can be used to measure, model, compare and explain situations in the real world.	7-1: Ratios and Proportions Extend 7-1: Graphing Tech Lab: Fibonacci Sequence and Ratios 7-2: Similar Polygons 7-3: Similar Triangles Extend 7-3: Geom Lab: Slopes of Perpendicular and Parallel Lines 7-4: Parallel Lines and Proportional Parts 7-5: Parts of Similar Triangles Extend 7-5: Geom Lab: Fractals 7-6: Similarity Transformations	• How can two objects be similar? (Sample answers: Two objects could have similar designs, patterns, shapes, sizes, or colors.) • How does similarity in mathematics compare to similarity in everyday life? (Sample answer: In mathematics, similarity has a more specific definition: objects or figures can only be similar if they have the same shape.) • How can you determine whether two objects are similar? (Sample answer: You can compare corresponding	CC.2.3.HS.A.11 Apply coordinate geometry to prove simple geometric theorems algebraically. CC.2.3.HS.A.14 Apply geometric concepts to model and solve real world problems. CC.2.3.HS.A.5 Create justifications based on transformations to establish similarity of plane figures. .2.3.HS.A.6 Verify and apply theorems involving similarity as they relate to plane figures. G.1.3.1.1 Identify and/or use properties of	• 7-1 Write ratios • Write and sole proportions • Extend 7-1 Compare each term in the Fibonacci sequence with its preceding term using a spreadsheet • 7-2 Use proportions to identify similar polygons • Solve problems using the properties of similar polygons • 7-3 Identify similar triangles using the AA Similarity Postulate and the SSS and SAS Similarity Theorems • Use similar triangles to solve problems • Extend 7-3 Use similar triangles to prove the sope	• Leveled Worksheets (Study Guide and Intervention, Skills Practice, Practice, Word Problems Practice, Enrichment.)	Homework (Teacher Editions, Suggested HW at beginning of each problem set) Participation Quiz (Mid Chapter Quiz/Test) Tests (Form 1, 2A, 2B, 2C)

		7-7: Scale Drawings and Models	angle measures to see if they are congruent and corresponding side lengths to see if they are proportional.) • Why is similarity useful? (Sample answer: Similarity can be used to create scale drawings and models and to solve problems involving indirect measurement.)	congruent and similar polygons or solids. G.1.3.1.2 Identify and/or use proportional relationships in similar figures. G.1.3.2.1 Write, analyze, complete, or identify formal proofs (e.g., direct and/or indirect proofs/proofs by contradiction). G.2.1.2.1 Calculate the distance and/or midpoint between 2 points on a number line or on a coordinate plane. G.2.1.2.2 Relate slope to perpendicularity and/or parallelism (limit to linear algebraic equations). G.2.1.2.3 Use slope, distance and/or midpoint between 2 points on a coordinate plane to establish properties of a 2-dimensional shape. G.2.1.3.1 Apply the concept of the slope of a line to solve problems. G.2.2.4.1 Use area models to find probabilities. G.2.3.1.1 Calculate the surface area of prisms,	criteria for perpendicular and parallel lines • 7-4 Use proportional parts within triangles • Use proportional parts with parallel lines • 7-5 Recognize and use proportional relationships of corresponding segments of similar triangles • Use the Triangle Angle Bisector Theorem • Extend 7-5 Investigate iteration and draw fractals • Write recursive formulas • 7-6 Identify similarity transformations • Verify similarity after a similarity transformation • 7-7 Interpret scale models • Use scale factors to solve problems		

				cylinders, cones, pyramids and/or spheres. Formulas are provided on the reference sheet. G.2.3.1.2 Calculate the volume of prisms, cylinders, cones, pyramids and/or spheres. Formulas are provided on the reference sheet. G.2.3.1.3 Find the measurement of a missing length given the surface area or volume.			
Chapter 8: Right Triangles and Trigonometry (Week 21-23)	• Triangles can be used to explain many real world situations, and Trigonometry can be used to analyze them.	8-1: Geometric Mean Explore 8-2: Geom Labs: Proofs Without Words 8-2: The Pythagorean Theorem and its Converse Extend 8-2: Geom Lab: Coordinates in Space 8-3: Special Right Triangles Explore 8-4: Graphing Tech Lab: Trigonometry 8-4: Trigonometry Extend 8-4: Graphing Tech Lab: Secant, Cosecant, and Cotangent 8-5: Angles of Elevation and Depression	• Why do we use mathematics to model real-world situations? (Sample answers: to solve problems, understand phenomena, look for trends.) • Why is trigonometry useful? (Sample answer: It allows us to solve problems modeled by triangles that cannot be solved using the Pythagorean Theorem.) • What are the strengths and weakness of the Law of Sines and Law of Cosines? (Sample answer: strengths: only three measurements are needed to solve a triangle, they can	CC.2.3.HS.A.14 Apply geometric concepts to model and solve real world problems. CC.2.3.HS.A.3 Verify and apply geometric theorems as they relate to geometric figures. CC.2.3.HS.A.6 Verify and apply theorems involving similarity as they relate to plane figures. G.1.2.1.1 Identify and/or use properties of triangles G.1.2.1.2 Identify and/or use properties of quadrilaterals G.1.2.1.3 Identify and/or use properties of isosceles and	• 8-1 Find the geometric mean between two numbers • Solve problems involving relationships between parts of a right triangle and the altitude to its hypotenuse • Explore 8-2 Prove the Pythagorean Theorem by using diagram without words • 8-2 Use the Pythagorean Theorem • Use the Converse of the Pythagorean Theorem • Extend 8-2 Graph points in space • Use the distance and midpoint formulas in space • 8-3 Use the properties of 45Â°-45Â°-90Â° triangles	• Leveled Worksheets (Study Guide and Intervention, Skills Practice, Practice, Word Problems Practice, Enrichment.)	Homework (Teacher Editions, Suggested HW at beginning of each problem set) Participation Quiz (Mid Chapter Quiz/Test) Tests (Form 1, 2A, 2B, 2C)

		8-6: The Law of Sines and Law of Cosines Extend 8-6: Geom Lab: The Ambiguous Case 8-7: Vectors Extend 8-7: Geom Lab: Adding Vectors	be used to solve any triangle; weaknesses: approximated values that are substituted back into the formulas may result in accuracy issues, technology must be used to calculate missing values.)	equilateral triangles. G.1.2.1.4 Identify and/or use properties of regular polygons G.1.2.1.5 Identify and/or use properties of pyramids and prisms. G.1.3.1.1 Identify and/or use properties of congruent and similar polygons or solids. G.1.3.1.2 Identify and/or use proportional relationships in similar figures. G.1.3.2.1 Write, analyze, complete, or identify formal proofs (e.g., direct and/or indirect proofs/proofs by contradiction). G.2.2.1.1 Use properties of angles formed by intersecting lines to find the measures of missing angles. G.2.2.1.2 Use properties of angles formed when two parallel lines are cut by a transversal to find the measures of missing angles. G.2.2.2.1 Estimate area, perimeter or circumference of an irregular figure.	• Use the properties of 30Â°-60Â°-90Â° triangles • Explore 8-4 Use Cabri Jr. to explore trigonometry, the study of patterns in right triangles • 8-4 Find trigonometric ratios using right triangles • Use trigonometric ratios to find angle measures in right triangles • Extend 8-4 Explore the trigonometric functions secant, cosecant, and cotangent • 8-5 Solve problems involving angles of elevation and depression • Use angles of elevation and depression to find the distance between two objects • 8-6 Use the Law of Sines to solve triangles • Use the Law of Cosines to solve triangles • Extend 8-6 • Determine whether three given measures define 0, 1, 2, or infinitely many triangles • 8-7 Find the magnitude and direction of vectors • Add and subtract vectors • Extend 8-7 Use scale drawings and direct measurement to find the resultant		

				G.2.2.2.2 Find the measurement of a missing length given the perimeter, circumference, or area. G.2.2.2.3 Find the side lengths of a polygon with a given perimeter to maximize the area of the polygon. G.2.2.2.4 Develop and/or use strategies to estimate the area of a compound/composite figure. G.2.2.2.5 Find the area of a sector of a circle. G.2.2.4.1 Use area models to find probabilities. G.2.3.1.1 Calculate the surface area of prisms, cylinders, cones, pyramids and/or spheres. Formulas are provided on the reference sheet. G.2.3.1.2 Calculate the volume of prisms, cylinders, cones, pyramids and/or spheres. Formulas are provided on the reference sheet. G.2.3.1.3 Find the measurement of a missing length given	of two vectors		

				the surface area or volume.			
Chapter 9: Transformations and Symmetry (Week 24-27)	• A series of congruence transformations will result in a series of congruent figures. Congruence transformations can be used to explain motion and design. • Transforming two-dimensional figures results in patterns or three-dimensional figures.	9-1: Reflections 9-2: Translations Explore 9-3: Geom Lab: Rotations 9-3: Rotations Extend 9-3: Geom Lab: Solids of Revolution Explore 9-4: Geom Software lab: Compositions of Transformations 9-4: Compositions of Transformations Extend 9-4: Geom Lab: Tessellations 9-5: Symmetry Extend 9-5: Geom Lab: Exploring Constructions with a Reflective Device Explore 9-6: Graphing Tech Lab: Dilations 9-6: Dilations Extend 9-6: Geom Lab: Establishing Triangle Congruence and Similarity	• Where can transformations be found? (Sample answer: in architectural designs, in art, in clothing patterns, in animations.) • Why is symmetry desirable? (Sample answer: Symmetry may be desirable in some cases, such as fashion or architecture, as a design element for visual appeal. In other cases, such as carpentry or engineering, it may be used for its structural benefits to stabilize objects.) • How are transformations and symmetry related? (Sample answer: The symmetry of a figure can be confirmed using congruence transformations.)	CC.2.3.HS.A.1 Use geometric figures and their properties to represent transformations in the plane. CC.2.3.HS.A.13 Analyze relationships between two-dimensional and three-dimensional objects. CC.2.3.HS.A.4 Apply the concept of congruence to create geometric constructions. CC.2.3.HS.A.5 Create justifications based on transformations to establish similarity of plane figures. G.1.1.1.1 Identify, determine and/or use the radius, diameter, segment and/or tangent of a circle. G.1.1.1.2 Identify, determine and/or use the arcs, semicircles, sectors, and/or angles of a circle. G.1.1.1.3 Use chords, tangents, and secants to find missing arc measures or missing segment measures. G.1.1.1.4 Identify and/or use the	• 9-1 Draw reflections • Draw reflections in the coordinate plane • 9-2 Draw translations • Draw translations in the coordinate plane • Explore 9-3 Explore the properties of rotations • 9-3 Draw rotations • Draw rotations in the coordinate plane • Extend 9-3 Identify and sketch solids formed by revolving two-dimensional figures about lines • Explore 9-4 Explore the effects of performing multiple transformations on a figure • 9-4 Draw glide reflections and other compositions of isometries in the coordinate plane • Draw compositions of reflections in parallel and intersecting lines • Extend 9-4 Identify regular tessellations • Create tessellations with and without using technology • 9-5 Identify line and rotational symmetries in two-dimensional figures • Identify plane and axis symmetries in three-dimensional figures • Extend 9-5 Use a	• Leveled Worksheets (Study Guide and Intervention, Skills Practice, Practice, Word Problems Practice, Enrichment.)	Homework (Teacher Editions, Suggested HW at beginning of each problem set) Participation Quiz (Mid Chapter Quiz/Test) Tests (Form 1, 2A, 2B, 2C)

				properties of a sphere or cylinder. G.1.2.1.1 Identify and/or use properties of triangles G.1.2.1.2 Identify and/or use properties of quadrilaterals G.1.2.1.3 Identify and/or use properties of isosceles and equilateral triangles. G.1.2.1.4 Identify and/or use properties of regular polygons G.1.2.1.5 Identify and/or use properties of pyramids and prisms. G.1.3.1.1 Identify and/or use properties of congruent and similar polygons or solids. G.1.3.1.2 Identify and/or use proportional relationships in similar figures. G.2.3.2.1 Describe how a change in the linear dimension of a figure affects its surface area or volume. (e.g., How does changing the length of the edge of a cube affect the volume of the cube?).	reflective device for geometric constructions • Explore 9-6 Use graphing technology to explore the properties of dilations • 9-6 Draw dilations • Draw dilations in the coordinate plane • Extend 9-6 Explore how triangle congruence and similarity follow from an understanding of transformations		
Chapter 10: Circles	• Circles can be	10-1: Circles and Circumference	• How can circles be	CC.2.3.HS.A.1 Use geometric figures	• 10-1 Identify and	• Leveled	Homework (Teacher

(Week 28-31)	used to model shapes that appear in the real world and analyzed to answer questions about them.	10-2: Measuring Angles and Arcs 10-3: Arcs and Chords 10-4: Inscribed Angles 10-5: Tangents Extend 10-5: Geom Lab: Inscribed and Circumscribed Circles 10-6: Secants, Tangents, and Angle Measures 10-7: Special Segments in a Circle 10-8: Equations of Circles Extend 10-8: Geom Lab: Parabolas	used? Sample answer: Circles can be used for their shape, to model a circular object, or for their properties, or to model an equal distance around a certain point. • How are circles and polygons similar? Different? Sample answer: Circles and polygons are similar in that they have shapes that can be used to model real-world objects, and you can find the distance around each figure or the area that the figure takes up. They are different in that polygons are closed figures composed of straight line segments, whereas a circle is made up of a locus of points equidistant from one point. Also, all circles are similar, but all polygons are not similar. • What about circles makes them useful? (Sample answers: They have a well-known shape; all circles are similar; they can be used to create graphical displays.)	and their properties to represent transformations in the plane. CC.2.3.HS.A.4 Apply the concept of congruence to create geometric constructions. CC.2.3.HS.A.8 Apply geometric theorems to verify properties of circles. CC.2.3.HS.A.9 Extend the concept of similarity to determine arc lengths and areas of sectors of circles. G.1.1.1.1 Identify, determine and/or use the radius, diameter, segment and/or tangent of a circle. G.1.1.1.2 Identify, determine and/or use the arcs, semicircles, sectors, and/or angles of a circle. G.1.1.1.3 Use chords, tangents, and secants to find missing arc measures or missing segment measures. G.1.1.1.4 Identify and/or use the properties of a sphere or cylinder. G.1.3.1.1 Identify and/or use properties of congruent and similar	use parts of circles • Solve problems involving the circumference of a circle • 10-2 Identify central angles, major arcs, minor arcs, and semicircles, and find their measures • Find arc lengths • 10-3 Recognize and use relationships between arcs and chords • Recognize and use relationships between arcs, chords, and diameters • 10-4 Find measures of inscribed angles • Find measures of angles of inscribed polygons • 10-5 Use properties of tangents • Solve problems involving circumscribed polygons • Extend 10-5 • Construct inscribed circles and circumscribed triangles • 10-6 Find measures of angles formed by lines intersecting on or inside a circle • Find measures of angles formed by lines intersecting outside the circle • 10-7 Find measures of segments that intersect in the interior of a circle • Find measures of segments that intersect in the	Worksheets (Study Guide and Intervention, Skills Practice, Practice, Word Problems Practice, Enrichment.)	Editions, Suggested HW at beginning of each problem set) Participation Quiz (Mid Chapter Quiz/Test) Tests (Form 1, 2A, 2B, 2C)

				polygons or solids. G.1.3.1.2 Identify and/or use proportional relationships in similar figures. G.1.3.2.1 Write, analyze, complete, or identify formal proofs (e.g., direct and/or indirect proofs/proofs by contradiction). G.2.1.4.1 Solve or graph systems of equations or systems of inequalities within a problem situation using coordinate geometry. G.2.2.2.1 Estimate area, perimeter or circumference of an irregular figure. G.2.2.2.2 Find the measurement of a missing length given the perimeter, circumference, or area. G.2.2.2.3 Find the side lengths of a polygon with a given perimeter to maximize the area of the polygon. G.2.2.2.4 Develop and/or use strategies to estimate the area of a compound/composite figure.	exterior of a circle • 10-8 Write the equation of a circle • Graph a circle on the coordinate plane • Extend 10-8 Identify conic sections • Translate between the geometric description and the equation for a parabola • Determine the intersections between lines and parabolas		

				G.2.2.2.5 Find the area of a sector of a circle. G.2.2.3.1 Describe how a change in the linear dimension of a figure affects its perimeter, circumference, and area. (e.g., How does changing the length of the radius of a circle affect the circumference of the circle?).			
Chapter 11: Area of Polygons and Circles (Week 32-34)	• Area can be described with infinitely many formulas (derived from compositions of formulas for other shapes)	11-1: Areas of Parallelograms and Triangles 11-2: Areas of Trapezoids, Rhombi, and Kites Extend 11-2: Geometry Lab: Population Density 11-3: Areas of circles and sectors Explore 11-4: Geom Lab: Investigating Areas of Regular Polygons 11-4: Areas of Regular Polygons and Composite Figures Extend 11-4: Geometry Lab: Regular Polygons on the Coordinate Plane 11-5: Areas of Similar Figures	• How can decomposing and recomposing shapes help us build our understanding of mathematics? Sample answers: By doing so, you can visualize how different formulas are developed; you can solve problems involving composite figures. • How are the area formulas for polygons related? Sample answer: The formula for the area of a parallelogram can be used to derive the formulas for the areas of other polygons. • Is there more than one formula that can be used to find the area of a given polygon? Explain. Yes; sample answer: Every polygon can be	CC.2.3.HS.A.11 Apply coordinate geometry to prove simple geometric theorems algebraically. CC.2.3.HS.A.12 Explain volume formulas and use them to solve problems. CC.2.3.HS.A.14 Apply geometric concepts to model and solve real world problems. CC.2.3.HS.A.9 Extend the concept of similarity to determine arc lengths and areas of sectors of circles. G.1.1.1.1 Identify, determine and/or use the radius, diameter, segment and/or tangent of a circle. G.1.1.1.2 Identify, determine and/or use the arcs,	• 11-1 Find perimeters and areas of parallelograms • Find perimeters and areas of triangles • 11-2 Find areas of trapezoids • Find areas of rhombi and kites • Extend 11-2 Explore population density • 11-3 Find areas of circles • Find areas of sectors of circles • Explore 11-4 Investigate the formula for the area of regular polygons • 11-4 Find areas of regular polygons • Find areas of composite figures • Extend 11-4 • Find areas and perimeters of regular polygons, including inscribed and circumscribed polygons on the coordinate plane • 11-5 Find areas of	• Leveled Worksheets (Study Guide and Intervention, Skills Practice, Practice, Word Problems Practice, Enrichment.)	Homework (Teacher Editions, Suggested HW at beginning of each problem set) Participation Quiz (Mid Chapter Quiz/Test) Tests (Form 1, 2A, 2B, 2C)

			decomposed into two or more figures. For example, a right trapezoid can be decomposed into a rectangle and a triangle. Therefore, another area formula that could be used is A = r + t, where r is the area of the rectangle and t is the area of the triangle. • Why do we have specific formulas that we use to find the areas of certain polygons? Sample answer: The formulas typically represent the most efficient ways to calculate the areas.	semicircles, sectors, and/or angles of a circle. G.1.1.1.3 Use chords, tangents, and secants to find missing arc measures or missing segment measures. G.1.1.1.4 Identify and/or use the properties of a sphere or cylinder. G.2.1.2.1 Calculate the distance and/or midpoint between 2 points on a number line or on a coordinate plane. G.2.1.2.2 Relate slope to perpendicularity and/or parallelism (limit to linear algebraic equations). G.2.1.2.3 Use slope, distance and/or midpoint between 2 points on a coordinate plane to establish properties of a 2-dimensional shape. G.2.1.3.1 Apply the concept of the slope of a line to solve problems. G.2.1.4.1 Solve or graph systems of equations or systems of inequalities within a problem situation using coordinate geometry.	similar figures by using scale factors • Find scale factors or missing measures given the areas of similar figures		

				G.2.2.2.1 Estimate area, perimeter or circumference of an irregular figure. G.2.2.2.2 Find the measurement of a missing length given the perimeter, circumference, or area. G.2.2.2.3 Find the side lengths of a polygon with a given perimeter to maximize the area of the polygon. G.2.2.2.4 Develop and/or use strategies to estimate the area of a compound/composite figure. G.2.2.2.5 Find the area of a sector of a circle. G.2.2.3.1 Describe how a change in the linear dimension of a figure affects its perimeter, circumference, and area. (e.g., How does changing the length of the radius of a circle affect the circumference of the circle?). G.2.2.4.1 Use area models to find probabilities. G.2.3.1.1 Calculate the surface			

				area of prisms, cylinders, cones, pyramids and/or spheres. Formulas are provided on the reference sheet. G.2.3.1.2 Calculate the volume of prisms, cylinders, cones, pyramids and/or spheres. Formulas are provided on the reference sheet. G.2.3.1.3 Find the measurement of a missing length given the surface area or volume.			
Chapter 13: Probability and Measurement (Week 35-36)	• Statistics can be used to analyze events singularly, and in series, and make predictions about their outcomes. • Geometry can be used as a visual model for probability.	13-1: Representing Sample Spaces 13-2: Probabilities with Permutations and Combinations 13-3: Geometric Probability 13-4: Simulations 13-5: Probabilities of Independent and Dependent Events Extend 3-5: Spreadsheet Lab: Two-way Frequency Tables 13-6: Probabilities of Mutually Exclusive Events Extend 13-6: Geometry Lab: Graph Theory	• How can we predict the outcomes of events? Sample answers: You can conduct an experiment to determine the chance that the event will occur; you can use information from previous events; you can use new information that you've gathered. • How can we quantify predictions? Sample answer: We can calculate or estimate the probability of the outcome occurring. • How can geometry be used to make predictions? Sample answer: You can find the probability of an	A1.2.3.3.1 Find probabilities for compound events (e.g., find probability of red and blue, find probability of red or blue) and represent as a fraction, decimal or percent). A2.2.3.2.1 Use combinations, permutations, and the fundamental counting principle to solve problems. A2.2.3.2.2 Use odds to find probability and/or use probability to find odds. A2.2.3.2.3 Use probability for independent, dependent or compound events to predict outcomes.	• 13-1 Represent Sample Spaces • Use the Fundamental Counting Principle to count outcomes • 13-2 Use permutations with probability • Use combinations with probability • 13-3 Find probabilities by using length • Fine probabilities by using area • 13-4 Design simulations to estimate probabilities • Summarize data from simulations • 13-5 Find probabilities of independent and dependent events • Find probabilities of events given the occurrence of other	• Leveled Worksheets (Study Guide and Intervention, Skills Practice, Practice, Word Problems Practice, Enrichment.)	Homework (Teacher Editions, Suggested HW at beginning of each problem set) Participation Quiz (Mid Chapter Quiz/Test) Tests (Form 1, 2A, 2B, 2C)

			event occurring by replacing the variables used for success and failure with measures of length or area. For example, you could find the probability of an event occurring in a specific sector of a circle by finding the ratio of the area of that sector to the area of the entire circle. • What should you consider when using the results of a simulation to make a prediction? Sample answers: the design of the simulation, how many trials were used, whether or not the theoretical and experimental probabilities are reasonably close	CC.2.3.HS.A.14 Apply geometric concepts to model and solve real world problems. CC.2.4.HS.B.6 Use the concepts of independence and conditional probability to interpret data. CC.2.4.HS.B.7 Apply the rules of probability to compute probabilities of compound events in a uniform probability model. G.2.2.4.1 Use area models to find probabilities. G.2.3.1.1 Calculate the surface area of prisms, cylinders, cones, pyramids and/or spheres. Formulas are provided on the reference sheet. G.2.3.1.2 Calculate the volume of prisms, cylinders, cones, pyramids and/or spheres. Formulas are provided on the reference sheet. G.2.3.1.3 Find the measurement of a missing length given the surface area or volume.	events • Extend 13-5 Use two-way frequency tables to find marginal, joint, and relative frequencies • 13-6 Find probabilities of events that are mutually exclusive and events that are not mutually exclusive • Find probabilities of complements • Extend 13-6 Apply physical models, graphs and networks to develop solutions in applied contexts		