Curriculum Mapping Mathematics - Geometry

1st Nine Weeks

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Module 1 : Tools of Geometry

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Number of School Days: 5 days instruction, 2 days assessments, total 7 days

Chapter Vocabulary: Collinear, Coplanar, Congruent, Segment bisector, Midpoint, Angle, Vertex, Ray, Angle Bisector, Perpendicular,

Lesson	Indiana Standard(s)	Learning Targets and "I CAN" Statements	Resources/Activities	Pacing (in school days)	Assessments
1-1 Points, Lines and Planes	G.PL.1	Apply theorems about lines and angles. Identify points, lines, planes and intersecting lines and planes.	Pages 5-12	Days: 1	Textbook Assignments, ALEKS
1-2 Line Segments and Distance	G.PL.3	Use tools to explain and justify the process to construct congruent segments and perpendicular bisectors. Find the distance between two points.	Pages 14-25	Days: 1	Textbook Assignments, ALEKS
1-3 Locating Points and Midpoints	G.PL.3	Use tools to explain and justify the process to construct perpendicular bisectors. Find the midpoint of a segment.	Pages 26-35	Days: 1	Textbook Assignments, ALEKS
1-4 Angle Measure	G.PL.3	Use tools to explain and justify the process to construct congruent angles and angle bisectors,	Pages 36-44	Days: 1	Textbook Assignments, ALEKS
1-5 Angle Relationships	G.PL.1	Prove and apply theorems about lines and angles:Vertical angles are congruent.	Pages 46-54	Days: 1	Textbook Assignments, ALEKS

Module 2: Logical Arguments and Line Relationships

Number of School Days: 10 days instruction, 2 days assessments, total 12 days

Chapter Vocabulary: Inductive Reasoning, Conjecture, Counterexample, Conditional Statement, Hypothesis, Conclusion, Converse, Inverse, Contrapositive, Biconditional, Truth Value, Postulate, Theorem, Segment Addition Postulate, Midpoint Theorem, Angle Addition Postulate, Angle Bisector Theorem, Parallel Lines, Transversal, Corresponding Angles, Alternate Interior Angles, Same-Side Interior Angles, Skew Lines

Lesson	Indiana Standard(s)	Learning Targets and "I CAN" Statements	Resources/Activities	Pacing (in school days)	Assessments
2-1 Conjecture & Counterexample	G.LP.1	Understand and describe the structure of and relationships within an axiomatic system. Understand the differences among supporting evidence, counterexamples, and actual proofs. Apply theorems about lines and angles	Pages 111-118	Days: 1	Textbook Assignments, ALEKS
2-2 Statements, Conditionals & Biconditionals	G.LP.3	State, use, and examine the validity of the converse, inverse, and contrapositive of conditional and bi-conditional statements.	Pages 119-130	Days: 1	Textbook Assignments, ALEKS
2-3 Deductive Reasoning	G.LP.4	Understand that proof is the means used to demonstrate whether a statement is true or false mathematically. Use the Law of Detachment and Law of Syllogism	Pages 131-140	Days: 1	Textbook Assignments, ALEKS Quiz
2-4 Writing Proofs	G.LP.4	Understand that proof is the means used to demonstrate whether a statement is true or false mathematically. Develop geometric proofs. Prove theorems about lines and angles	Pages 141-150	Days: 1	Textbook Assignments, ALEKS
2-5 Proving Segment Relationships	G.LP.4	Understand that proof is the means used to demonstrate whether a statement is true or false mathematically. Develop geometric proofs. Write proofs involving segment addition and	Pages 152-158	Days: 1	Textbook Assignments, ALEKS

		segment congruence.			
2-6 Proving Angle Relationships	G.PL.1 G.LP.4	Prove and apply theorems about lines and angles. Develop geometric proofs involving supplementary and complementary angles or congruent and right angles.	Pages 159-168	Days: 1	Textbook Assignments, ALEKS
2-7 Parallel Lines and Transversals	G.PL.1	Prove and apply theorems about lines and angles, including the following: • When a transversal crosses parallel lines, alternate interior angles are congruent, alternate exterior angles are congruent, and corresponding angles are congruent. • When a transversal crosses parallel lines, same side interior angles are supplementary.	Pages 169-177	Days: 1	Textbook Assignments, ALEKS
2-8 Slope & Equations of Lines	G.LP.2	Use precise definitions for angle, circle, perpendicular lines, parallel lines, and line segment. Use slope to identify parallel and perpendicular lines.	Pages 178-185	Days: 1	Textbook Assignments, ALEKS
2-9 Proving Lines Parallel	G.LP.2 G.LP.4	Use precise definitions for angle, circle, perpendicular lines, parallel lines, and line segment. Prove two lines are parallel	Pages 186-193	Days: 1	Textbook Assignments, ALEKS
2-10 Perpendiculars and Distance	G.LP.2 G.LP.4	Use precise definitions for angle, circle, perpendicular lines, parallel lines, and line segments. Find the distance between a point and a line or between parallel lines.	Pages 194-203	Days:2	Textbook Assignments, ALEKS Unit Test

Mathematics - Geometry

2nd Nine Weeks

Module 3: Rigid Transformations and Symmetry	Number of School Days: 5 days instruction, 2 days assessments, total 7 days		
Chapter Vocabulary: Reflection, Translation, Vector, Rotation, Symmetry			
Code for Indiana Standards: PL = Points, lines and angles, LP = TS=Three-Dimensional Solids	Logic and Proofs, T= Triangles, QP = Quadrilaterals and other Polygons, CI= Circles, TR= Transformations,		

Lesson	Indiana Standard(s)	Learning Targets and "I CAN" Statements	Resources/Activities	Pacing (in school days)	Assessments
3-1 Reflections	G.TR.1	Use geometric descriptions of rigid motions to transform figures and to predict and describe the results of reflections on a given figure. Draw a reflection	Pages221-229	Days: 1	Textbook Assignments, ALEKS
3-2 Translations	G.TR.1	Use geometric descriptions of rigid motions to transform figures and to predict and describe the results of translations on a given figure. Draw a translation.	Pages 230-238	Days: 1	Textbook Assignments, ALEKS
3-3 Rotations	G.TR.1	Use geometric descriptions of rigid motions to transform figures and to predict and describe the results rotations on a given figure. Draw a rotation.	Pages 239-246	Days: 1	Textbook Assignments, ALEKS
3-4 Compositions of Transformations	G.TR.1	Describe a motion or series of motions that will show two shapes are congruent. Draw a glide reflection.	Pages 248+258	Days: 1	Textbook Assignments, ALEKS
3-5 Symmetry	G.TR.1	Use lines of symmetry to describe reflections.	Pages 259-267	Days: 1	Textbook Assignments, ALEKS

Module 4: Triangles and Congruence

Number of School Days: 7 days instruction, 2 days assessments, total 9 days

Chapter Vocabulary: Flow proof, exterior angle, remote interior angle, included angle, included side, vertex angle, base angle, coordinate proof

Lesson	Indiana Standard(s)	Learning Targets and "I CAN" Statements	Resources/Activities	Pacing (in school days)	Assessments
4-1 Angles of Triangles	G.T.1	 Prove and apply theorems about triangles, including the following: Triangle sum theorem Exterior angle theorem 	Pages 111-118	Days: 1	Textbook Assignments, ALEKS
4-2 Congruent Triangles	G.T.1	Prove and apply theorems about triangles.	Pages 119-130	Days: 1	Textbook Assignments, ALEKS
4-3 Proving Triangles Congruent - SSS, SAS	G.LP.4 G.T.2	Develop geometric proofs. Explore and explain how the criteria for triangle congruence (ASA, SAS, AAS, SSS, and HL) follow from the definition of congruence in terms of rigid motions.	Pages 131-140	Days: 1	Textbook Assignments, ALEKS
4-4 Proving Triangles Congruent - ASA, AAS	G.LP.4 G.T.2	Develop geometric proofs. Explore and explain how the criteria for triangle congruence (ASA, SAS, AAS, SSS, and HL) follow from the definition of congruence in terms of rigid motions.	Pages 141-150	Days: 1	Textbook Assignments, ALEKS
4-5 Proving Right Triangles Congruent	G.T.1	Prove and apply theorems about triangles. Use the right triangle congruence theorem to prove relationships in geometric figures.	Pages 152-158	Days: 1	Textbook Assignments, ALEKS
4-6 Isosceles and Equilateral	G.T.1	Prove and apply theorems about triangles, including the following	Pages 159-168	Days: 1	Textbook Assignments, ALEKS

Triangles		• The Isosceles Triangle Theorem and its converse. • The Angle Bisector Theorem			
4-7 Triangles and Coordinate Proof	G.LP.4	Develop geometric proofs, including those involving coordinate geometry.	Pages 169-177	Days: 1	Textbook Assignments, ALEKS

Module 5: Relationships in Triangles

Number of School Days: 6 days instruction, 2 days assessments, total 8 days

Chapter Vocabulary: perpendicular bisector, concurrent lines, circumcenter, incenter, median, centroid, altitude, orthocenter

Lesson	Indiana Standard(s)	Learning Targets and "I CAN" Statements	Resources/Activities	Pacing (in school days)	Assessments
5-1 Bisectors of Triangles	G.T.1	 Prove and apply theorems about triangles, including the following: Angle bisectors perpendicular bisectors 	Pages 353-363 Geogebra	Days: 1	Textbook Assignments, ALEKS
5-2 Medians and Altitudes of Triangles	G.T.3	Use tools to explain and justify the process to construct congruent triangles.	Pages 364-373 Geogebra	Days: 1	Textbook Assignments, ALEKS
	G.T.7	Explore the relationships that exist when the altitude is drawn to the hypotenuse of a right triangle			
5-3 Inequalities in One Triangle	G.T.6	Prove and apply the inequality theorems, including the following:Inequality in one triangle.	Pages 374-381	Days: 1	Textbook Assignments, ALEKS
5-5 The Triangle Inequality	G.T.6	Prove and apply the inequality theorems, including the following: • Triangle inequality.	Pages 394-400	Days: 1	Textbook Assignments, ALEKS

5-6 Inequalities in Two Triangles	G.T.6	Prove and apply the inequality theorems, including the following: • Triangle inequality. • Inequality in one triangle. • The hinge theorem and its converse.	Pages 401-410	Days: 1	Textbook Assignments, ALEKS
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Mathematics - Geometry 3rd Nine Weeks

Module 6: Quadrilaterals

Number of School Days: 5 days instruction, 2 days assessments, total 7 days

Chapter Vocabulary: diagonal, parallelogram, rectangle, rhombus, square, trapezoid, midsegment, kite

Lesson	Indiana Standard(s)	Learning Targets and "I CAN" Statements	Resources/Activities	Pacing (in school days)	Assessments
6-1 Angles of Polygons	G.QP.3	Develop and use formulas to find measures of interior and exterior angles of polygons.	Pages 423-432	Days: 1	Textbook Assignments, ALEKS
6-2 Parallelograms	G.QP.1	Prove and apply theorems about parallelograms, including those involving angles, diagonals, and sides	Pages 433-441	Days: 0.5	Textbook Assignments, ALEKS
6-3 Tests for Parallelograms	G.QP.2	Prove that given quadrilaterals are parallelograms.	Pages 442-451	Days: 0.5	Textbook Assignments, ALEKS
6-4 Rectangles	G.QP.1 G.QP.2	Prove and apply theorems about parallelograms. Prove that given quadrilaterals are parallelograms and rectangles.	Pages 453-459	Days: 1	Textbook Assignments, ALEKS
6-5 Rhombi and Squares	G.QP.1	Prove and apply theorems about parallelograms, including those involving	Pages 460-468	Days: 1	Textbook Assignments, ALEKS

	G.QP.2	angles, diagonals, and sides. Prove that given quadrilaterals are parallelograms, rhombuses, rectangles and squares.			
6-6 Trapezoids and Kites	G.QP.2	Prove that given quadrilaterals are kites or trapezoids. Include coordinate proofs of quadrilaterals in the coordinate plane.	Pages 469-478	Days 1	Textbook Assignments, ALEKS Unit Test

Module 7: Similarity	Number of School Days: 6 days instruction, 2 days assessments, total 8 days
Chapter Vocabulary:	dilation, similar polygons, similarity transformation, scale factor, midsegment of a triangle
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Lesson	Indiana Standard(s)	Learning Targets and "I CAN" Statements	Resources/Activities	Pacing (in school days)	Assessments
7-1 Dilations	G.TR.2	Draw Dilations. Verify experimentally the properties of dilations given by a center and a scale factor.	Pages 492-498	Days: 1	Textbook Assignments, ALEKS
7-2 Similar Polygons	G.QP.4	Use the definition of similarity to identify similar polygons. Solve problems by using properties of similar polygons	Pages 502-509	Days: 1	Textbook Assignments, ALEKS
7-3 Similar Triangles - AA	G.T.4	Use the AA similarity criterion to prove triangles congruent. Solve problems using the properties of similar triangles	Pages 511-519	Days: 1	Textbook Assignments, ALEKS
7-4 Similar Triangles - SSS, SAS	G.T.4	Use the SSS and SAS similarity theorems to prove triangles are similar.	Pages 521-529	Days: 1	Quiz, Textbook Assignments, ALEKS
7-5 Parallel lines and	G.T.1	Use proportional parts within triangles and	Pages 534-543	Days: 1	Textbook

Proportional Parts		parallel lines. Apply the Triangle Proportionality Theorem.			Assignments, ALEKS
7-6 Parts of Similar Triangles	G.T.1	Use the Triangle Bisector Theorem.	Pages 544-551	Days 1	Unit Test Textbook Assignments, ALEKS

Module 8: Right Triangles and Trigonometry

Number of School Days: 5 days instruction, 2 days assessments, total 7 days

Chapter Vocabulary: Geometric mean, Pythagorean triple, trigonometry, trigonometric ratio, sine, cosine, tangent, angles of elevation and depression, solving a triangle

Lesson	Indiana Standard(s)	Learning Targets and "I CAN" Statements	Resources/Activities	Pacing (in school days)	Assessments
8-1 Geometric Mean	G.T.7	Explore the relationships that exist when the altitude is drawn to the hypotenuse of a right triangle. Understand and use the geometric mean to solve for missing parts of triangles.	Page 565-573	Days: 1	Textbook Assignments, ALEKS
8-2 Pythagorean Theorem and Converse	G.T.1	Prove and apply theorems about triangles, including the following:The Pythagorean Theorem.	Page 575-583	Days: 1	Textbook Assignments, ALEKS
8-3 Special Right Triangles	G.T.10	Explore the relationship between the sides of special right triangles (30° - 60° and 45° - 45°) and use them to solve real-world and other mathematical problems.	Pages 586-594	Days: 1	Textbook Assignments, ALEKS
8-4 Trigonometry	G.T.8	Understand that by similarity, side ratios in right triangles are properties of the angles in the triangle, leading to definitions of	Pages 596-605	Days: 1	Textbook Assignments, ALEKS

		trigonometric ratios for acute angles. Use trigonometric ratios to find angle measures in right triangles.		
8-5 Angles of Elevation and Depression	G.T.9	Use trigonometric ratios to solve real- world and mathematical problems involving right triangles.	Days: 1	Textbook Assignments, ALEKS

Curriculum Mapping Mathematics - Geometry 4th Nine Weeks

Module 9: Circles

Number of School Days: 4 days instruction, 2 days assessments, total 6 days

Chapter Vocabulary: circle, center, radius, chord, diameter, circumference, pi, inscribed, circumscribed, central angle, arc, inscribed angle, intercepted arc

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Lesson	Indiana Standard(s)	Learning Targets and "I CAN" Statements	Resources/Activities	Pacing (in school days)	Assessments
9-1 Circles and Circumference	G.CI.1	Define, identify and use relationships among the following: radius, diameter, arc, measure of an arc, chord. Solve problems involving circumference.	Pages 643-651	Days: 1	Textbook Assignments, ALEKS
9-2 Measuring Angles and Arcs	G.CI.1 G.CI.2	Identify central angles, major arcs, minor arcs and semicircles and find their measures. Find arc lengths.	Pages 652-660	Days: 1	Textbook Assignments, ALEKS
9-3 Arcs and Chords	G.CI.3 G.CI.4	Solve real-world and other mathematical problems that involve finding measures of circumference, areas of circles and sectors, and arc lengths and related angles	Pages 661-668	Days: 1	Textbook Assignments, ALEKS
9-4 Inscribed Angles	G.CI.3	Find the measure of inscribed angles.	Pages 669-676	Days: 1	Textbook

G.CI.4		Assignments, ALEKS

Module 10: Extending Area

Number of School Days: 6 days instruction, 2 days assessments, total 8 days

Chapter Vocabulary: Base, height, sector of a circle, segment of a circle, radius of regular polygon, apothem, composite figure, lateral face, lateral edge, regular pyramid, slant height, right cone, oblique cone

Lesson	Indiana Standard(s)	Learning Targets and "I CAN" Statements	Resources/Activities	Pacing (in school days)	Assessments
10-1 Areas of Parallelograms and Triangles	G.QP.5	Compute perimeters and areas of parallelograms or triangles to solve real- world and other problems.	Pages 725-732	Days: 1	Textbook Assignments, ALEKS
10-2 Areas of Trapezoids, Rhombi and Kites	G.QP.5	Compute areas of trapezoids, rhombi and kites to solve real-world and other mathematical problems.	Pages 733-742	Days: 1	Textbook Assignments, ALEKS
10-3 Areas of Circles and Sectors	G.CI.2 G.CI.4	Derive that the length of the arc intercepted by an angle is proportional to the radius and the formula for the area of a sector.Compute the areas of circles and sectors.	Pages 743-750	Days: 1	Textbook Assignments, ALEKS
10-4 Area of Regular Polygons	G.QP.6	Develop and use formulas for areas of regular polygons.	Pages 752-759	Days: 1	Textbook Assignments, ALEKS
10-5 Area and Nonrigid Transformations	G.TS.3	Explore properties of congruent and similar solids, including prisms, regular pyramids, cylinders, cones, and spheres and use them to solve problems.	Pages 763-769	Days: 1	Textbook Assignments, ALEKS
10-6 Surface Area	G.TS.5	Solve real-world and other mathematical problems surface area of prisms, cylinders,	Pages 770-781	Days: 1	Textbook Assignments, ALEKS

			cones, spheres, and pyramids.			Test
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Module 11: Extending Volume	Number of School Days: 5 days instruction, 2 days assessments, total 7 days				
Chapter Vocabulary: orthographic drawing, net, great circle, poles, hemisphere,					
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Lesson	Indiana Standard(s)	Learning Targets and "I CAN" Statements	Resources/Activities	Pacing (in school days)	Assessments
1-9 2D Representation of 3D figures	G.TS.1	Represent the 3D figures as 2D figures with orthographic drawings and nets.	Pages 84-95	Days: 1	Textbook Assignments, ALEKS
11-2 Volumes of Prisms and Cylinders	G.TS.3 G.TS.4	Find volumes of prisms and cylinders	Pages 802-809	Days: 1	Textbook Assignments, ALEKS
11-3 Volumes of Pyramids and Cones	G.TS.3 G.TS.4	Find volumes of pyramids and cones.	Pages 810-816	Days: 1	Textbook Assignments, ALEKS
11-4 Spheres	G.TS.3 G.TS.4	Find surface areas and volumes of spheres.	Pages 818-825	Days: 1	Textbook Assignments, ALEKS
11-6 Volume and Nonrigid Transformations	G.TS.3 G.TS.4	Identify scale factor by using dilation. Find surface area and volume of similar solids using scale factors.	Pages 834-840	Days: 1	Textbook Assignments, ALEKS Test