Huntsville City Schools - Instructional Guide

2017 – 2018

Geometry and Honors Geometry (NON - BLOCK SCHEDULE: 7 PERIOD DAY) 11

Grades: 9 -

Color Clarifications:

Green has to do with pacing/timing/scheduling of materials.
Pink has to do with differentiating between Regular and Honors Geometry.

Table of Contents:

Overall Geometry Helpful Resources:

1. Mixed Reviews are at end of sections. Helpful chapter projects and list of standards next to questions in teacher edition.

2. www.interactmath.com , www.commoncorepal.com , and www.geogebra.org are good resources for practice and review.

3. Cumulative Standards Review are located at the end of each chapter for in-depth practice problems.

**Please Note: For each chapter, the "Total Days" includes one day for review and one day for testing of the chapter.

Additional Resources:

- **Dan Meyer Resources**
  - **Blog**
    - http://blog.mrmeyer.com/category/3acts/
  - **List of Activities**
    - https://docs.google.com/spreadsheet/ccc?key=0AjIqyKM9d7ZYdEhtR3BJMmdBWnM2YWxWYVM1UWowTEE#gid=0

- **Granite City Math Vocabulary**
  - http://www.graniteschools.org/mathvocabulary/

- **Kahoot Games**
  - www.create.kahoot.it

- ***Debbie Waggoner Resources***
  - http://www.debbiewaggoner.com/secondary-grades-6-12.html

Unit 1 - First 9-weeks

Standard		Resources	Pacing Recommendation / Date(s) Taught
First 9-weeks			
Unit 1: Tools for Geometry			13 days
This unit corresponds well with Pearson Geometry Chapter 1, with the first portion of the unit giving emphasis to the building of proper vocabulary and symbols, while the second portion is emphasizing the application points, lines, and planes, as well as the other learned vocabulary.			
ALCOS #1. Know precise definitions of angle, circle, perpendicular line, parallel line, and line segment based on the undefined notions of point, line, distance along a line, and distance around a circular arc. [G-CO1]		Pearson: 1.2-1.5 IXL: C.1 LTF:	Throughout the unit. 5 days
ALCOS #32. Find the point on a directed line segment between two given points that partitions the segment in a given ratio. [G-GPE6]		Pearson: 1.7 (Problem 46) IXL: LTF:	2 days
ALCOS #12. Make formal geometric constructions with a variety of tools and methods such as compass and straightedge, string, reflective devices, paper folding, and dynamic geometric software. Constructions include copying a segment; copying an angle; bisecting a segment; bisecting an angle; constructing perpendicular lines, including the perpendicular bisector of a line segment; and constructing a line parallel to a given line through a point not on the line. [G-CO12]		Pearson: 1.6 IXL: B.9,C.6 - C.7, D.2, D.5, & G.5-G.6 LTF:	1 day
ALCOS #30. Use coordinates to prove simple geometric theorems algebraically. [G-GPE4]		Pearson:1.7 IXL: B.4 & B.7 LTF:	
ALCOS #33. Use coordinates to compute perimeters of polygons and areas of triangles and rectangles, e.g., using the distance formula.* [G-GPE7]		Pearson: 1.7-1.8 IXL: LTF:	

ALCOS #39. Use geometric shapes, their measures, and their properties to describe objects (e.g., modeling a tree trunk or a human torso as a cylinder).* [G-MG1]		Pearson: 1.8 IXL: LTF: Infinity in Geometry (This lesson shows the derivation of the area of a circle based on the formula for circumference, and cutting the circle into tiny sectors.)	2 days
ALCOS #40. Apply concepts of density based on area and volume in modeling situations (e.g., persons per square mile, British Thermal Units (BTUs) per cubic foot). [G-MG2]		Pearson: 1.8 IXL: LTF:	

Unit 2 - First 9-weeks

Standard		Resources	Pacing Recommendation / Date(s) Taught
First 9-weeks			
Unit 2: Reasoning and Proof			12 days
A primary resource for this Unit will be Pearson Geometry, in particular sections 2.2-2.6, though regular Geometry should consider reinforcing the concepts on patterns and inductive reasoning from section 2.1.			
ALCOS #9. Prove theorems about lines and angles. Theorems include vertical angles are congruent; when a transversal crosses parallel lines, alternate interior angles are congruent and corresponding angles are congruent; and points on a perpendicular bisector of a line segment are exactly those equidistant from the segment's endpoints. [G-CO9]		Pearson: 2.6 IXL: C.8 & D.6 – D.7 LTF: Logical Reasoning (This lesson gives students the opportunity to assign a true or false value to each of 10 "tricky" statements.)	
(Prepares for) ALCOS #10. Prove theorems about triangles. Theorems include measures of interior angles of a triangle sum to 180º, base angles of isosceles triangles are congruent, the segment joining midpoints of two sides of a triangle is parallel to the third side and half the length, and the medians of a triangle meet at a point. [G-CO10]		Pearson: 2.2-2.6 IXL: K.6, K.10, M.8, & M.9 LTF: FAL: Evaluating Conditions for Congruency	
(Prepares for) ALCOS #11. Prove theorems about parallelograms. Theorems include opposite sides are congruent, opposite angles are congruent; the diagonals of a parallelogram bisect each other; and		Pearson: 2.2-2.6 IXL: N.10 – N.11 LTF:	

conversely, rectangles are parallelograms with congruent diagonals. [G-CO11]			

Unit 3 - First 9-weeks

Standard		Resources	Pacing Recommendation / Date(s) Taught
First 9-weeks			
Unit 3: Parallel and Perpendicular Lines			16 days
The first part of this unit deals with angles formed by lines and a transversal, then extension is made to parallel lines cut by a transversal, and finally the Triangle-Angle Sum Theorem. The second part of the unit is devoted to parallel and perpendicular lines, both from a construction and an algebraic standpoint. The primary text resource here is Pearson Geometry (3.1-3.8).			
ALCOS #1. Know precise definitions of angle, circle, perpendicular line, parallel line, and line segment based on the undefined notions of point, line, distance along a line, and distance around a circular arc. [G-CO1]		Pearson: 3.4 IXL: C.1 LTF:	
ALCOS #12. Make formal geometric constructions with a variety of tools and methods such as compass and straightedge, string, reflective devices, paper folding, and dynamic geometric software. Constructions include copying a segment; copying an angle; bisecting a segment; bisecting an angle; constructing perpendicular lines, including the perpendicular bisector of a line segment; and constructing a line parallel to a given line through a point not on the line. [G-CO12]		Pearson: 3.6 IXL: B.9, C.6 – C.7, D.2, D.5, & G.5 – G.6 LTF:	
ALCOS #41. Apply geometric methods to solve design problems (e.g., designing an object or structure to satisfy physical constraints or minimize cost, working with typographic grid systems based on ratios).* [G-MG3]		Pearson: 3.1-3.8 IXL: LTF:	

ALCOS #10. Prove theorems about triangles. Theorems include measures of interior angles of a triangle sum to 180º, base angles of isosceles triangles are congruent, the segment joining midpoints of two sides of a triangle is parallel to the third side and half the length, and the medians of a triangle meet at a point. [G-CO10]		Pearson: 3.5 IXL: K.6, K.10, & M.8 – M.9 LTF:	
ALCOS #31. Prove the slope criteria for parallel and perpendicular lines, and use them to solve geometric problems (e.g., find the equation of a line parallel or perpendicular to a given line that passes through a given point). [G-GPE5]		Pearson: 3.7-3.8 IXL: B.8, & S.5 – S.6 LTF: Tangent Line Equations (Teacher would need to briefly explain the equation of a circle, but this lesson does a good job driving home an important situation where we need a line perpendicular to a given line through a given point.) FAL: Sorting Equations of Circles 1 FAL: Sorting Equations of Circles 2 FAL: Inscribing and Circumscribing Right Triangles	

Unit 4 - Second 9-weeks

Standard		Resources	Pacing Recommendation / Date(s) Taught
Second 9-weeks			
Unit 4: Congruent Triangles			17 days
The first part of this chapter provides the basics for ways triangles can be proven to be congruent, while the second section provides methods specific to certain triangle types (isosceles, equilateral, right, overlapping). The primary text resource for this unit is Pearson Geometry 4.1-4.6 for all levels, and Honors Geometry also visiting concepts in section 4.7.			
ALCOS #18. Use congruence and similarity criteria for triangles to solve problems and to prove relationships in geometric figures. [G-SRT5]		Pearson: 4.1-4.7 IXL: K.1 – K.9, K.11, P.1 – P.7, & P.10 – P.13 LTF:	
ALCOS #10. Prove theorems about triangles. Theorems include measures of interior angles of a triangle sum to 180º, base angles of isosceles triangles are congruent, the segment joining midpoints of two sides of a triangle is parallel to the third side and half the length, and the medians of a triangle meet at a point. [G-CO10]		Pearson: 4.5 IXL: K.6, K.10, & M.8 – M.9 LTF:	
ALCOS #8. Explain how the criteria for triangle congruence, angle-side-angle (ASA), side-angle-side (SAS), and side-side-side (SSS), follow from the definition of congruence in terms of rigid motions. [G-CO8]		Pearson: 4.1-4.3 IXL: LTF:	

Unit 5 - Second 9-weeks

Standard		Resources	Pacing Recommendation / Date(s) Taught
Second 9-weeks			
Unit 5: Relationships Within Triangles			13 days
The main portion of this unit deals with concurrent lines in triangles, and the second part, which mostly pertains to Honors Geometry deals with indirect proof and inequalities in triangles. The main text resource for this unit is Pearson Geometry (5.1-5.4, 5.6 for Regular and 5.1-5.7 for Honors).			
ALCOS #10. Prove theorems about triangles. Theorems include measures of interior angles of a		Pearson: 5.1-5.4 IXL: K.6, K.10, & M.8 – M.9	

triangle sum to 180º, base angles of isosceles triangles are congruent, the segment joining midpoints of two sides of a triangle is parallel to the third side and half the length, and the medians of a triangle meet at a point. [G-CO10]		LTF:	
ALCOS #18. Use congruence and similarity criteria for triangles to solve problems and to prove relationships in geometric figures. [G-SRT5]		Pearson: 5.1-5.4 IXL: K.1 – K.9, K.11, P.1 – P.7, & P.10 – P.13 LTF:	
ALCOS #9. Prove theorems about lines and angles. Theorems include vertical angles are congruent; when a transversal crosses parallel lines, alternate interior angles are congruent and corresponding angles are congruent; and points on a perpendicular bisector of a line segment are exactly those equidistant from the segment's endpoints. [G-CO9]		Pearson: 5.2 IXL: C.8 & D.6 – D.7 LTF:	
ALCOS #12. Make formal geometric constructions with a variety of tools and methods such as compass and straightedge, string, reflective devices, paper folding, and dynamic geometric software. Constructions include copying a segment; copying an angle; bisecting a segment; bisecting an angle; constructing perpendicular lines, including the perpendicular bisector of a line segment; and constructing a line parallel to a given line through a point not on the line. [G-CO12]		Pearson: 5.1-5.4 IXL: B.9, C.6 – C.7, D.2, D.5, & G.5 – G.6 LTF:	
ALCOS #26. Construct the inscribed and circumscribed circles of a triangle, and prove properties of angles for a quadrilateral inscribed in a circle. [G-C3]		Pearson: 5.2-5.3 IXL: L.1 & O.3 – O.4 LTF:	
** Create equations and inequalities in one variable, and use them to solve problems. Include equations arising from linear and quadratic functions, and simple rational and exponential functions. [A-CED] ** Alg I Objectives – Review.		Pearson: 5.6-5.7 IXL: LTF:	

Unit 6a - Second 9-weeks

Standard		Resources	Pacing Recommendation / Date(s) Taught
Second 9-weeks			
Unit 6a: Polygons and Quadrilaterals			11 days
The first part of this unit is devoted to the general polygon-angle sum theorem, then emphasis is given to the various types of special quadrilaterals. The primary text resource is Pearson Geometry 6.1-6.6.			
ALCOS #11. Prove theorems about parallelograms. Theorems include opposite sides are congruent, opposite angles are congruent; the diagonals of a parallelogram bisect each other; and conversely, rectangles are parallelograms with congruent diagonals. [G-CO11]		Pearson: 6.2-6.6 IXL: N.10 – N.11 LTF: Handshake Problem (goes alongside the idea of counting total diagonals – connecting two points instead of connecting two people)	

Unit 6b - Third 9-weeks

Standard		Resources	Pacing Recommendation / Date(s) Taught
Third 9-weeks			
Unit 6b: Polygons and Quadrilaterals			6 days
This unit (or sub-unit) deals with analytic geometry, or coordinate geometry, where specific coordinates are used to verify criteria, and general coordinates are used to prove theorems. The primary text resource is Pearson Geometry (6.7 for Regular Geometry, and 6.7-6.9 for Honors Geometry).			
ALCOS #11. Prove theorems about parallelograms. Theorems include opposite sides are congruent, opposite angles are congruent; the diagonals of a parallelogram bisect each other; and conversely, rectangles are parallelograms with congruent diagonals. [G-CO11]		Pearson: 6.7 IXL: N.10 - N.11 LTF:	
ALCOS #33. Use coordinates to compute perimeters of polygons and areas of triangles and rectangles, e.g., using the distance formula.* [G-GPE7]		Pearson: 6.7 IXL: LTF:	
ALCOS #30. Use coordinates to prove simple geometric theorems algebraically. [G-GPE4] Example: Prove or disprove that a figure defined by four given points in the coordinate plane is a rectangle; prove or disprove that the point (1, √3) lies on the circle centered at the origin and containing the point (0,2)		Pearson: 6.7 IXL: B.4 & B.7 LTF: Coordinate Geometry and Proofs (This problem is really just about using variable coordinates to verify properties of a geometric figure on the coordinate plane.)	

Unit 7 - Third 9-weeks

Standard		Resources	Pacing Recommendation / Date(s) Taught
Third 9-weeks			
Unit 7: Similarity			11 days
Similar polygons are the focus! This means we will use a lot of ratios to solve problems. The primary text resource is Pearson Geometry (7.1-7.5). Honors Geometry may consider whether 7.1 is helpful for your class, depending on the readiness of your students.			
ALCOS #18. Use congruence and similarity criteria for triangles to solve problems and to prove		Pearson: 7.1-7.5 IXL: K.1 – K.9, K.11, P.1 – P.7, & P.10 – P.13	

relationships in geometric figures. [G-SRT5]		LTF:	
(Algebra Standard for Review) Create equations and inequalities in one variable, and use them to solve problems. Include equations arising from linear and quadratic functions, and simple rational and exponential functions. [A-CED1]		Pearson: 7.4-7.5 IXL: LTF:	
ALCOS #17. Prove theorems about triangles. Theorems include a line parallel to one side of a triangle divides the other two proportionally, and conversely; and the Pythagorean Theorem proved using triangle similarity. [G-SRT4]		Pearson: 7.5 IXL: M.9 & P.14 – P.15 LTF: FAL: Proving the Pythagorean Theorem	

Unit 8 - Third 9-weeks

Standard		Resources	Pacing Recommendation / Date(s) Taught
Third 9-weeks			
Unit 8: Right Triangles and Trigonometry			13 days
This unit has some very important concepts for students moving on to more advanced math courses. These concepts include: Pythagorean Theorem, Converse of the Pythagorean Theorem, Special Right Triangles, Basic Triangle Trigonometry, and for Honors – Law of Sines and Law of Cosines. The primary text resource will be Pearson Geometry 8.1-8.4 for Regular Geometry and 8.1-8.6 for Honors.			
ALCOS #17. Prove theorems about triangles. Theorems include a line parallel to one side of a triangle divides the other two proportionally, and conversely; and the Pythagorean Theorem proved using triangle similarity. [G-SRT4]		Pearson: 8.1 IXL: M.9 & P.14 – P.15 LTF: Pythagorean Theorem Applications (More involved problems combining algebra and the Pythagorean Theorem); Introduction to Related Rates – Pythagorean Theorem (Good for writing equations for one side in terms of another side.)	
ALCOS #19. Understand that by similarity, side ratios in right triangles are properties of the angles in the		Pearson: 8.2-8.4 IXL: R.1 -R.3 & R.6 LTF: Special Right Triangle Applications (Lots of topics in the applications – so it might be better	

triangle leading to definitions of trigonometric ratios for acute angles. [G-SRT6]		near the end of the year.); Trig. Ratios with Special Right Triangles (Explores trig. function values for angles in special right triangles.) FAL: Solving Problems with Circles and Triangles	
ALCOS #20. Explain and use the relationship between the sine and cosine of complementary angles. [G-SRT7]		Pearson: 8.3-8.4 IXL: R.4 LTF:	
ALCOS #21. Use trigonometric ratios and the Pythagorean Theorem to solve right triangles in applied problems.* [G-SRT8]		Pearson: 8.4 IXL: Q.1 – Q.3 & R.8 – R.9 LTF: Vectors (Good word problems dealing with vectors. You could also share this with a Pre-Calculus teacher.)	
ALCOS #39. Use geometric shapes, their measures, and their properties to describe objects (e.g., modeling a tree trunk or a human torso as a cylinder).* [G-MG1]		Pearson: 8.5 IXL: LTF:	
(Honors Only) ALCOS #22. (+) Prove the Law of Sines and the Law of Cosines and use them to solve problems. [G-SRT10]		Pearson: 8.5-8.6 IXL: R.11 – R.12 LTF: Proof of Law of Sines (Guides students through the proof of law of sines.)	
(Honors Only) ALCOS #23. (+) Understand and apply the Law of Sines and the Law of Cosines to find unknown measurements in right and non-right triangles (e.g., surveying problems, resultant forces). [G-SRT11]		Pearson: 8.5-8.6 IXL: R.13 LTF:	

Unit 10a - Third 9-weeks

Standard		Resources	Pacing Recommendation / Date(s) Taught
Third 9-weeks			
Unit 10a: Area			10 days

In this unit, we have several methods for finding areas of quadrilaterals and triangles, and we use trigonometry to find the area of a regular polygon. Then we move on to finding arc length and sector areas for circles. Finally, we apply all of these concepts to calculate geometric probability. The primary text for this unit is Pearson Geometry 10.1-10.7 for Regular Geometry, and 10.8 for Honors.			
ALCOS #33. Use coordinates to compute perimeters of polygons and areas of triangles and rectangles, e.g., using the distance formula.* [G-GPE7]		Pearson: 10.1-10.5 IXL: LTF: Areas of Triangles (Many methods for finding areas of triangles. Even if you don't do all of them, students usually enjoy the variety of methods here.) FAL: Evaluating Statements About Length and Area	
ALCOS #39. Use geometric shapes, their measures, and their properties to describe objects (e.g., modeling a tree trunk or a human torso as a cylinder).* [G-MG1]		Pearson: 10.1-10.5 IXL: LTF:	
ALCOS #41. Apply geometric methods to solve design problems (e.g., designing an object or structure to satisfy physical constraints or minimize cost, working with typographic grid systems based on ratios).* [G-MG3]		Pearson: 10.1-10.5 IXL: LTF:	
ALCOS #13. Construct an equilateral triangle, a square, and a regular hexagon inscribed in a circle. [G-CO13]		Pearson: 10.3,10.5 IXL: U.14 – U.16 LTF:	
ALCOS #34. Determine areas and perimeters of regular polygons, including inscribed or circumscribed polygons, given the coordinates of vertices or other characteristics. (Alabama only)		Pearson: 10.3,10.5 IXL: LTF: Accumulation (Good review and/or application of area concepts to approximate the area of an irregular region under a curve.)	

Unit 10b - Fourth 9-weeks

Standard		Resources	Pacing Recommendation / Date(s) Taught
Fourth 9-weeks			
Unit 10b: Area			7 days
ALCOS #33. Use coordinates to compute perimeters of polygons and areas of triangles and rectangles, e.g., using the distance formula.* [G-GPE7]		Pearson: 10.8 IXL: LTF:	
ALCOS #39. Use geometric shapes, their measures, and their properties to describe objects (e.g., modeling a tree trunk or a human torso as a cylinder).* [G-MG1]		Pearson: 10.6-10.8 IXL: LTF:	
ALCOS #41. Apply geometric methods to solve design problems (e.g., designing an object or structure to satisfy physical constraints or minimize cost, working with typographic grid systems based on ratios).* [G-MG3]		Pearson: 10.6-10.8 IXL: LTF:	
ALCOS #13. Construct an equilateral triangle, a square, and a regular hexagon inscribed in a circle. [G-CO13]		Pearson: 10.7-10.8 IXL: U.14 – U.16 LTF:	
ALCOS #1. Know precise definitions of angle, circle, perpendicular line, parallel line, and line segment based on the undefined notions of point, line, distance along a line, and distance around a circular arc. [G-CO1]		Pearson: 10.6 IXL: C.1 LTF:	
ALCOS #24. Prove that all circles are similar. [G-C1]		Pearson: 10.6-10.7 IXL: P.9 LTF:	
ALCOS #28. Derive, using similarity, the fact that the length of the arc intercepted by an angle is proportional to the radius, and define the radian measure of the angle as the constant of proportionality; derive the formula for the area of a sector. [G-C5]		Pearson: 10.6-10.7 IXL: U.3 – U.4 LTF:	

(Honors Only) ALCOS 42. (+) Use probabilities to make fair decisions (e.g., drawing by lots, using a random number generator). [S-MD6]		Pearson: 10.8 IXL: LTF: Geometric Probability (Good review of some of the geometric probability concepts.)	
(Honors Only) ALCOS #43. (+) Analyze decisions and strategies using probability concepts (e.g., product testing, medical testing, pulling a hockey goalie at the end of a game). [S-MD7]		Pearson: 10.8 IXL: LTF:	

Unit 12 - Fourth 9-weeks

Standard		Resources	Pacing Recommendation / Date(s) Taught
Fourth 9-weeks			
Unit 12: Circles			14 days
This unit deals with the interaction of tangent lines and secant lines with circles. We will find angle measures in several situations, as well as segment lengths in those situations. Finally, we will work with equations of circles in the coordinate plane, and we will discuss what is meant by a "locus" of points. The primary text resource will be Pearson Geometry 12.1-12.6.			
ALCOS #25. Identify and describe relationships among inscribed angles, radii, and chords. Include the relationship between central, inscribed, and circumscribed angles; inscribed angles on a diameter are right angles; the radius of a circle is perpendicular to the tangent where the radius intersects the circle. [G-C2]		Pearson Geometry: 12.1-12.4 IXL: U.6 & U.9 LTF:	
ALCOS #29. Derive the equation of a circle of given center and radius using the Pythagorean Theorem; complete the square to find the center and radius of a circle given by an equation. [G-GPE1]		Pearson Geometry: 12.5 IXL: LTF:	
(Honors Only) ALCOS #27. (+) Construct a tangent line from a point outside a given circle to the circle. [G-C4]		Pearson Geometry: 12.1 IXL: U.7 & U.13	

		LTF: Tangent Line Equations (Good review of equations of perpendicular lines through a given point. Also, a good application of tangent lines to coordinate geometry.)	

Unit 11 - Fourth 9-weeks

Standard		Resources	Pacing Recommendation / Date(s) Taught
Fourth 9-weeks			
Unit 11: Surface Area and Volumes			17 days
This unit deals with cross-sections, surface areas, volumes, and ratios of these quantities between similar solids. The primary text resource is Pearson Geometry, 11.1-11.7 for both Regular and Honors, but a particular emphasis should be on 11.7 for the Honors course.			
ALCOS #38. Identify the shapes of two-dimensional cross-sections of three-dimensional objects, and identify three-dimensional objects generated by rotations of two-dimensional objects. [G-GMD4]		Pearson Geometry: 11.1-11.6 IXL: H.4 – H.5 LTF: Volumes of Revolution (Good chance for students to be exposed to revolutions where they can easily find the surface areas and volumes. You might not do this entire lesson, or you might want to!)	
ALCOS #39. Use geometric shapes, their measures, and their properties to describe objects (e.g., modeling a tree trunk or a human torso as a cylinder).* [G-MG1]		Pearson Geometry: 11.1-11.7 IXL: LTF:	
ALCOS #35. Give an informal argument for the formulas for the circumference of a circle; area of a circle; and volume of a cylinder, pyramid, and cone. Use dissection arguments, Cavalieri's principle, and informal limit arguments. [G-GMD1]		Pearson Geometry: 11.6-11.7 IXL: LTF: Volume of a Sphere by Cross-Sections (This lesson uses the volume of a cylinder and the volume of a cone to derive the volume of a sphere using Cavalieri's principle.)	

ALCOS #36. Use volume formulas for cylinders, pyramids, cones, and spheres to solve problems.* [G-GMD3]		Pearson Geometry: 11.2-11.7 IXL: LTF:	
ALCOS #40. Apply concepts of density based on area and volume in modeling situations (e.g., persons per square mile, British Thermal Units (BTUs) per cubic foot).* [G-MG2]		Pearson Geometry: 11.2-11.7 IXL: T.4 – T.6 LTF:	
ALCOS #37. Determine the relationship between surface areas of similar figures and volumes of similar figures. (Alabama)		Pearson Geometry: 11.7 IXL: LTF:	

Unit 9 - Fourth 9-weeks

Standard		Resources	Pacing Recommendation / Date(s) Taught
Fourth 9-weeks			
Unit 9: Transformations			10 days
This unit is an algebraic/coordinate approach to many of the Geometry concepts. It emphasizes the more algebraic definition of congruence (rigid motion), and distinguishes between which types of transformations lead to congruence, and which types lead to similarity.			
ALCOS #2. Represent transformations in the plane using, e.g., transparencies and geometry software; describe transformations as functions that take points in the plane as inputs and give other points as outputs. Compare transformations that preserve distance and angle to those that do not (e.g., translation versus horizontal stretch). [G-CO2]		Pearson Geometry: 9.1-9.7 IXL: LTF: FAL: Deducting Relationships: Floodlight Shadows FAL: Modeling Motion: Rolling Cups	
ALCOS #4. Develop definitions of rotations, reflections, and translations in terms of angles, circles, perpendicular lines, parallel lines, and line segments. [G-CO4]		Pearson Geometry: 9.1-9.7 IXL: L.7 LTF:	

ALCOS #5. Given a geometric figure and a rotation, reflection, or translation, draw the transformed figure using, e.g., graph paper, tracing paper, or geometry software. Specify a sequence of transformations that will carry a given figure onto another. [G-CO5]		Pearson Geometry: 9.1-9.7 IXL: L.2, L.5, & L.8 LTF:	
ALCOS #6. Use geometric descriptions of rigid motions to transform figures and to predict the effect of a given rigid motion on a given figure; given two figures, use the definition of congruence in terms of rigid motions to decide if they are congruent. [G-CO6]		Pearson Geometry: 9.1-9.7 IXL: L.11 LTF: Reflection of Lines (Good development of learning to reflect 2 points from a line instead of trying to reflect the whole line at once.)	
ALCOS #3. Given a rectangle, parallelogram, trapezoid, or regular polygon, describe the rotations and reflections that carry it onto itself. [G-CO3]		Pearson Geometry: 9.1-9.7 IXL: L.11 & O.3 – O.4 LTF:	
ALCOS #7. Use the definition of congruence in terms of rigid motions to show that two triangles are congruent if and only if corresponding pairs of sides and corresponding pairs of angles are congruent. [G-CO7]		Pearson Geometry: 9.1-9.7 IXL: LTF:	
ALCOS #8. Explain how the criteria for triangle congruence, angle-side-angle (ASA), side-angle-side (SAS), and side-side-side (SSS), follow from the definition of congruence in terms of rigid motions. [G-CO8]		Pearson Geometry: 9.1-9.7 IXL: LTF:	
ALCOS #14. Verify experimentally the properties of dilations given by a center and a scale factor. [G-SRT1] a. A dilation takes a line not passing through the center of the dilation to a parallel line and leaves a line passing through the center unchanged. [G-SRT1a] b. The dilation of a line segment is longer or shorter in the ratio given by the scale factor. [G-SRT1b]		Pearson Geometry: 9.1-9.7 IXL: L.16 LTF:	

ALCOS #15. Given two figures, use the definition of similarity in terms of similarity transformations to decide if they are similar; explain using similarity transformations the meaning of similarity for triangles as the equality of all corresponding pairs of angles and the proportionality of all corresponding pairs of sides. [G-SRT2]		Pearson Geometry: 9.1-9.7 IXL: P.8 – P.9 LTF:	
ALCOS #16. Use the properties of similarity transformations to establish the angle-angle (AA) criterion for two triangles to be similar. [G-SRT3]		Pearson Geometry: 9.1-9.7 IXL: LTF:	

Alabama Technology Standards Ninth – Twelfth Grade

Operations and Concepts

Students will:

2. Diagnose hardware and software problems. Examples: viruses, error messages Applying strategies to correct malfunctioning hardware and software Performing routine hardware maintenance Describing the importance of antivirus and security software

3. Demonstrate advanced technology skills, including compressing, converting, importing, exporting, and backing up files. Transferring data among applications Demonstrating digital file transfer Examples: attaching, uploading, downloading

4. Utilize advanced features of word processing software, including outlining, tracking changes, hyperlinking, and mail merging.

5. Utilize advanced features of spreadsheet software, including creating charts and graphs, sorting and filtering data, creating formulas, and applying functions.

6. Utilize advanced features of multimedia software, including image, video, and audio editing.

Digital Citizenship

9. Practice ethical and legal use of technology systems and digital content. Explaining consequences of illegal and unethical use of technology systems and digital content Examples: cyberbullying, plagiarism Interpreting copyright laws and policies with regard to ownership and use of digital content Citing sources of digital content using a style manual Examples: Modern Language Association (MLA), American Psychological Association (APA)

Research and Information Fluency

11. Critique digital content for validity, accuracy, bias, currency, and relevance.

Communication and Collaboration

12. Use digital tools to publish curriculum-related content. Examples: Web page authoring software, coding software, wikis, blogs, podcasts

13. Demonstrate collaborative skills using curriculum-related content in digital environments.

Examples: completing assignments online; interacting with experts and peers in a structured, online learning environment

Critical Thinking, Problem Solving, and Decision Making

14. Use digital tools to defend solutions to authentic problems. Example: disaggregating data electronically

Creativity and Innovation

15. Create a product that integrates information from multiple software applications. Example: pasting spreadsheet-generated charts into a presentation