

Chapter 17. Curriculum for Geometry

Part A. Correlation of Objectives with Recommended Textbooks

NUMBER STRAND – Geometry

Alabama Course of Study	TEAM-Math	AHSGE	Glencoe	IMP Unit	Core Plus
	G4. Apply operations involving radicals and introduce operations with vectors.	IV-2,VII-2 IV-2,VII-1,VII-2 ALL:VII-4	7-2 p 349-356 9-6 p 498-505 p 744-745	(3) Meadows or Malls [Days 27-35]	IV-A Unit 2 Lesson 1 Navigation II-A Unit 2 Lesson 1 Modeling p102

ALGEBRA STRAND – Geometry

Alabama Course of Study	TEAM-Math	AHSGE	Glencoe	IMP Unit	Core Plus
	A1a. Extend solving equations and inequalities to applications. b. Reinforce and apply operations on polynomials	ALL:VII-4	Scattered throughout text	(3) Fireworks [Day 2]	III-A Unit 3 Lesson 5 Investigation 2 Algebraic (Reasoning in Geo and Stat)
	A3. Applying factoring when problem solving.			(3) Fireworks [Day 4]	IV-B Lesson 1 Investigation 1
1. Determine the equation of a line parallel or perpendicular to a second line through a given point.		IV-2,VI-1 II-1,II-3,IV-2, VII-1 ALL:VII-4	3-4 p 146-147 5-1 p 241-242		II-A Unit 2 Lesson 1 Modeling p 90

GEOMETRY STRAND – Geometry

Alabama Course of Study	TEAM-Math	AHSGE	Glencoe	IMP Unit	Core Plus
<p>3. Verify the relationships among different classes of polygons by using their properties.</p> <p>a. Determining the missing lengths of sides or measures of angles in similar polygons</p> <p>14. Classify polyhedrons according to their properties, including the number of faces.</p> <p>b. Identifying Euclidean solids</p>	<p>G1. Identify geometric figures from a verbal description of its properties. (Course of Study #3 & #14)</p>	<p>II-1,VI-1,VII-1, VII-3 II-1,IV-2, VI-1, VII-1, VII-3 II-1,IV-2,VI-1, VII-3 II-1, IV-1</p> <p>ALL:VII-4</p>	<p>6-2 p 289-296 6-3 p 300-301 6-4 p 308-309 6-5 p 316-318</p> <p>12-1 p 636-642</p>	<p>(1) Patterns [p 115, 119] (1) Shadows [Day 11] (3) Orchard Hideout [Day 1]</p>	<p>II-B Unit 6 Investigation 1 Lesson 1 (Using Quadrilaterals In linkages)</p> <p>I-B unit 5 Lesson 3 Investigation 1 (Polygons and Their Properties)</p>
<p>8. Deduce relationships between two triangles, including proving congruence or similarity of the triangles from given information, using the relationships to solve problems and to establish other relationships.</p> <p>a. Determining the geometric mean to find missing lengths in right triangles</p> <p>13. Identify the coordinates of the vertices of the image of a given polygon that is translated, rotated, reflected, or dilated.</p>	<p>G2. Understand and analyze properties of transformations, similarity, and congruence. (Course of Study #8 & #13)</p>	<p>IV-2,VII-1 IV-2,VII-1 VII-1 VII-1</p> <p>II-1,IV-2, VI-1, VII-1, VII-3 II-1, IV-1 II-2, VII-3</p> <p>ALL:VII-4</p>	<p>4-3 p 192-194 4-4 p 200-203 4-5 p 207- 210 4-5 Follow Up p 214- 215 6-3 p 298-301 6-5 p 316-319 7-1 p 342- 344</p>	<p>(1) Shadows[Days 6-16] (2) Do Bees Build [entire unit] (3) Orchard Hideout [Day 1]</p>	<p>II-A Unit 2 Investigation 1 Modeling Rigid Transformations</p> <p>II-B Unit 2 Investigation 2 Lesson 1 Linkages and Similarity</p>
<p>12. Apply distance, midpoint, and slope formulas to solve problems and to confirm properties of polygons.</p>	<p>G3. Apply distance, midpoint, and slope formulas to solve problems and to confirm properties of polygons. (Course of Study #12)</p>	<p>I-2, II-1,IV-1,IV-2, VI-1,VII-1 II-1,VI-1,VII-1, VII-3 II-1, IV-1 II-1,IV-2,VII-1 I-2,II-1,IV-1,IV-2, VII-1 I-2,II-1,IV-2,VII-1 II-1,IV-1,VI-1</p>	<p>1-6 p 48-49 6-2 p 295 6-5 p 315 8-2 p 415 8-3 p 420-422 8-6 p 442-448 9-2 p 472 9-4 p 488 9-5 p 495 11-1 p 597-599</p>		<p>II-A Lesson 1 Unit 2 Investigation 1 Plotting Polygons and Computing distances</p>

		II-1,VII-1 IV-1, IV-2,VII-3 IV-1, IV-2, II-1, IV-1, IV-2 IV-1, IV-2, VI-1 ALL: VII-4	11-2 p 603 11-2 p 605-606 11-4 p 618-621		
5. Solve real-life and mathematical problems using properties and theorems related to circles, quadrilaterals, and other geometric shapes. a. Determining the equation of a circle given its center and radius 6. Apply the Pythagorean Theorem to solve application problems, expressing answers in simplified radical form or as decimal approximations, using Pythagorean triples when applicable.	G4. Apply geometric properties and relationships in solving multi-step problems in 2 & 3 dimensions. (Course of Study #5 & #6)	I-2,II-1,IV-1,IV-2, VII-1,VI-1 IV-2 II-1,VII-1 IV-2,VII-1 VII-1 VII-1 VI-1,VII-1,VII-3, IV-2,VI-1,VII-1,VII-3 VII-3 VII-2,VII-3 IV-2,VII-2 IV-2,VII-1,VII-2 VI-1,VII-2 VI-1 VI-1,VII-2 VII-1 IV-2,VII-1 IV-2,VII-1 II-1,IV-1,VII-1 IV-1,VI-1 II-1,II-2,IV-1,VI-1 II-3,IV-2 IV-2 IV-2 IV-2,VI-1 ALL: VII-4	1-6 P 47 4-1 P 178 4-2 P 188 4-3 P 193 4-5 P 209-210 5-2 P 250 5-5 P 270 6-2 P 290-292 6-3 P 300-301 6-4 P 310 6-5 P 318 7-1 P 344 7-2 P 350-356 7-3 P 358 7-5 P 371-372 7-6 P 379-380 7-7 P 387 8-1 p 405 8-3 p 418 8-5 p 433 10-3 p 537 10-6 p 563 10-7 p 570 10-8 p 575-577 11-1 p 596-597 11-3 p 612 11-4 p 618	(1) Shadows [Days 10, 20] (2) Do Bees Build [Days 12-16] (3) Orchard Hideout Day [5-14,19]	II-B Unit 6 Lesson 2 Investigation 1 (Triangles with a Variable – Length side) I-B Unit 5 Investigation 2 Lesson 2 (Television screen and Pythagoras)

MEASUREMENT STRAND – Geometry

Alabama Course of Study	TEAM-Math	AHSGE	Glencoe	IMP Unit	Core Plus
	M1. Analyze various problems to determine which measurement and tools are appropriate in relation to Geometry topics, including analyzing accuracy and approximate error.	ALL: VII-4	Scattered throughout text	(1) Shadows [Days 6-12] (2) Do Bees Build [Days 2-8] (3) Orchard Hideout [Days 5-7] (3) Meadows or Malls [Days 8-14] (4) As The Cube Turns [Days 20-30] (4) Know How [Days 3-4]	IV-A Unit 5 Lesson 4 Investigation 1 (Characteristics of Experiments)
4. Determine the measure of interior and exterior angles associated with polygons. a. Verifying the formulas for the measures of interior and exterior angles of polygons inductively and deductively	M2. Determine the measure of interior and exterior angles associated with polygons. a. Verifying the formulas for the measures of interior and exterior angles of polygons inductively and deductively (Course of Study #4)	I-2,II-1,IV-1, VII-1, VII-4 ALL: VII-4	8-1 p 404-410	(1) Shadows [Days 12, 14-15]	III-A Unit 4 Lesson 1 Extending p295 III-A Capstone Investigation 1 (Do Bees Build it Best)
11. Determine the areas and perimeters of regular polygons, including inscribed or circumscribed polygons, given the coordinates of vertices or other characteristics. 15. Calculate measures of arcs and sectors of a circle from given information. Examples: finding the area of a sector given its arc length and radius, finding the arc length of a sector given its area and radius, finding the area or arc length given the measure of the central angle and the radius 16. Calculate surface areas and volumes of solid figures, including spheres, cones, and pyramids.	M3. Determine the areas and perimeters of regular polygons, including inscribed or circumscribed polygons, given the coordinates of vertices or other characteristics.(Course of Study #11) M4. Calculate measures of arcs and sectors of a circle from given information. Examples: finding the area of a sector given its arc length and radius, finding the arc length of a sector given its area and radius, finding the area or arc length given the measure of the central angle and the radius (Course of Study #15) M5. Calculate surface areas	I-2,II-1,IV-1,IV-2, VII-1,VI-1 IV-2 IV-2,VII-1 IV-2,VI-1,VII-1 IV-1,VI-1,VII-2 IV-1,IV-2,VII-1 VII-1,IV-2 IV-1 IV-1,IV-2 IV-1,IV-2 IV-1,IV-2 I-2,II-1,IV-1,VII-1 I-2,II-1,IV-1,VII-1, VII-2 VII-6	1-6 p 47-49 4-1 p 180 5-1 p 241-244 6-3 p 302 6-3 p 305-306 7-7 p 390 8-5 p 432 8-6 p 442-445 10-1 p 528 11-1 p 595-598 11-2 p 601-603 11-3 p 610-616 11-4 p 617-618 12-1 p 642 Skills p 732-733 10-2 p 529-535 10-3 p 536- 543 11-5 p 623- 626	(2) Do Bees Build It [entire unit]] (3) Orchard Hideout [Days 5-14]	III-A Capstone Investigation (Do Bees Build it Best?) I-A Unit 2 Lesson 4 P151 #5 I-B Unit 5 Lesson 1 Investigation 2 (Recognizing and Constructing Space-Shapes) I-B Unit 5 Lesson 2 Investigation 1 (Describing size) I-B Unit 5 Lesson 2 Investigation 3 (Size Measures for Space-Shapes)

Alabama Course of Study	TEAM-Math	AHSGE	Glencoe	IMP Unit	Core Plus
a. Developing formulas for surface area and volume of spheres, cones, and pyramids b. Calculating specific missing dimensions of solid figures from surface area or volume c. Determining the relationship between the surface areas of similar figures and volumes of similar figures	and volumes of solid figures, including spheres, cones, and pyramids. a. Developing formulas for surface area and volume of spheres, cones, and pyramids b. Calculating specific missing dimensions of solid figures from surface area or volume c. Determining the relationship between the surface areas of similar figures and volumes of similar figures (Course of Study #16)	IV-1,VII-2 IV-1,VII-2 IV-1,VII-2 IV-1 IV-1 I-3,I-4,IV-1 IV-1,VII-3 All: VII-4	12-5 p 660 – 665 12-6 p 666- 669 12-7 p 671- 676 13-2 p 696- 700 13-3 p 702 – 706 12-4 p 656 13-4 p 707 – 713		
13. Identify the coordinates of the vertices of the image of a given polygon that is translated, rotated, reflected, or dilated.	M6. Identify the coordinates of the vertices of the image of a given polygon that is translated, rotated, reflected, or dilated. Example: using a translation vector, rotating a triangle a given number of degrees around a specific point (Course of Study #13)	II-1,IV-1,VI-1 IV-1,VII-1 IV-1,IV-2,VII-3 IV-1,IV-2 All: VII-4	9-1 p 465-468 9-2 p 470-474 9-3 p 479-481 9-5 p 492- 495 11-1 p 600	(1) Shadows [p 43] (4) As The Cube Turns [Days 8-20,31-33] (4) World Of Functions [Days 27-28]	I-B Unit 5 Tessellations/Symmetry I-B Unit 5 Lesson 3 Investigation 3 (Symmetry, Patterns In Strips)

DATA ANALYSIS & PROBABILITY STRAND – Geometry

Alabama Course of Study	TEAM-Math	AHSGE	Glencoe	IMP Unit	Core Plus
4. Analyze sets of data from geometric contexts, to determine what, if any, relationships exist a. Distinguishing between conclusions drawn when using deductive and statistical reasoning	D2. Distinguishing between conclusions drawn when using deductive and statistical reasoning (Course of Study #17a)	All: VII-4	2-1 p 62-64 2-2 p 68-69 2-3 p 76-77 2-4 p 82-87; p 88 Study Guide p 115-117 5-3 p 255-257 Spreadsheet Inv p 410		I-B Unit 6 Lesson 2 Investigation 2 (Sierpinski Carpets)
18. Construct with precision a circle graph to represent data from given tables or classroom experiments.	D3. Construct with precision a circle graph to represent data from given tables or classroom experiments. (Course of Study #18)	I-2,II-1,IV-1,VII-1,VII-4	10-2 p 534		
17. Analyze sets of data from geometric contexts to determine what, if any, relationships exist. a. Distinguishing between conclusions drawn when using deductive and statistical reasoning	D4. Analyze sets of data from geometric contexts to determine what, if any, relationships exist. (Course of Study #17a)	IV-1, VII-4,VII-6			I-B Unit 6 Lesson 2 Investigation 2 (Sierpinski Carpets)
b. Calculating probabilities arising in geometric contexts	D5. Calculating probabilities arising in geometric contexts (Course of Study #17b)		Geometry Activity p 20 11-5 p 622- 627		I-B Unit 7 Lesson 1 p494 #5 II-B Unit 7 Lesson 2 Investigation 1 (Multiplying Probabilities)

Part B. Suggested Sequence of Instructions

UNIT: 1 Fundamentals of Geometry – Lines, Angles and Logic

Topics	AL COS	TEAM-Math	Glencoe	IMP
Understand undefined terms of geometry (point, line, plane)			1-1 p 6-12	
Demonstrate competency with measurement tools (ruler, protractor, compass)	17	M1	1-2 p 13-20	
Revisit Pythagorean theorem and apply distance, midpoint, and slope formulas	12	G3	1-3 p 21-28	
Identify angle relationships and justify theorems related to pairs of angles	2	G4, G5, D4	1-4 p 29-36 1-5 p 37-44	(1) Shadows [Days 14-16]
Introduction to coordinate geometry through perimeter of polygons (introduced here but covered throughout)	11	M3	1-6 p 45-52	
Use inductive and deductive reasoning	9, 17	D2, G5	2-1 p 62-66 2-2 p 67-74 2-3 p 75-80 2-4 p 82-88	(1) Shadows throughout unit
Using methods of proof to justify theorems	9	G5	2-5 p 89-93 2-6 p 99-100 2-7 p 101-106 2-8 p 107-114	
Analyze information (introduced here but covered throughout)	9	D4	Throughout Chapter 2	(1) Shadows throughout unit
Determine equations of parallel and perpendicular lines	1,2,12	G5	3-1 p 126-131 3-2 p 133-138 3-3 p 139-144 3-4 p 145-150 3-5 p 151-157	
Application of equations to geometric problems(covered throughout)	12	A1a	Throughout Chapter 3	(1) Shadows throughout unit

UNIT: 2 Triangles – Classification, Congruency, Similarity and Trigonometry

Topics	AL COS	TEAM-Math	Glencoe	IMP
Classify types of triangles	8	G2	4-1 p 178-183	
Apply angle properties of triangles	8	G6	4-2 p 184-191	
Prove triangles are congruent and use properties of congruent triangles to find missing measures(CPCTC)	5, 8	G2	4-3 p 192-198 4-4 p 200-206 4-5 p 207-215	
Utilize the properties of isosceles and equilateral triangles to determine missing measures	5, 8	G6	4-6 p 216-221	
Identify special segments of triangles, their intersections and their measurement properties	8	G6	5-1 p 236-245	

Application of inequalities to geometric problems (triangle inequalities)	9a, 8	G6	5-2 p 247-254 5-4 p 261-266 5-5 p 267-273	(1) Shadows [Days 11-12]
Apply properties of similar triangles including use of scale factors and proportions	3a, 5	G2	6-1 p 282-288 6-2 p 289-297 6-3 p 298-306 6-4 p 307-315 6-5 p 316-323	(1) Shadows [Days 7-13 Days 17-19]
Determine geometric mean to find missing lengths in right triangles	5, 8a	N4, G5	7-1 p 342-348	
Apply Pythagorean theorem, special right triangle rules, and other operations involving radicals to find missing lengths of sides	6, 7	N4, G4, G6	7-2 p 349-356 7-3 p 357-363	(1) Shadows [Days 7-13] (2) Bees [Days 11-16]
Apply right triangle definitions of sine, cosine and tangent to find missing measures	10	G6	7-4 p 364-370 7-5 p 371-376	(1) Shadows [Days 22-25] (2) Bees [Days 9-10]
Apply factoring and use of polynomials in problem solving applications(covered throughout)		A3	Throughout text	

UNIT: 3 Geometric Figures- Quadrilaterals, Transformations and Circles

Topics	AL COS	TEAM-Math	Glencoe	IMP
Determine the measures of interior and exterior angles associated with polygons and verify the formulas	4, 4a	M2, M2a	8-1 p 404-410	
Identify quadrilaterals from verbal descriptions of properties and apply the properties (parallelogram, rhombus, square, and trapezoid.)	3	G1, A1a	8-2 p 411-416 8-3 p 417-423 8-4 p 424-430 8-5 p 431-438 8-6 p 439-445	
Understand and analyze properties of transformations		G2	9-1 p 462-469 9-2 p 470-475 9-3 p 476-482	
Coordinate geometry applications of transformations	13	M6	8-7 p 447-451 9-1 p 462-469 9-2 p 470-475 9-3 p 476-482	
Introduce operations with vectors		N4	9-6 p 498-505	
Understand and apply properties of circles including arcs, chords, secants, tangents, and angles related to circles	15	M4	Chapter 10 10-1 to 10-7 p 522-574	
Real life applications related to circles, quadrilaterals and other geometric shapes	5	A3	Throughout Unit 3 Chapters 8, 9 & 10	
Construct with precision a circle graph representing data	18	D3	10-2 p 529-535	
Determine the equation of a circle	5a		10-8 p 575-580	

UNIT: 4 Area and Volume- Area of Polygons and Circles, Surface Area and Volume

Topics	AL COS	TEAM-Math	Glencoe	IMP
Area of polygons, circles, and irregular figures	11	G4, M3	11-1 p 595-600 11-2 p 601-609 11-3 p 610-616 11-4 p 617-621	(2) Bees [Days 3-8]
Calculate measures of sectors of a circle	15	M4	11-5 p 622-627	
Calculate probabilities arising in geometric contexts	17b	D5	11-5 p 622-627	
Classify polyhedra according to their properties	14	G1	12-1 p 636-642	
Develop formulas for & calculate surface area; find missing dimensions of solid figures including cylinders, prisms, spheres, cones, and pyramids from surface area	16, 16a 16b	M5, M5a M5b	12-3 p 649-654 12-4 p 655-659 12-5 p 660-665 12-6 p 666-670 12-7 p 671-677	(2) Bees [Days 22-27]
Develop formulas for & calculate volume; find missing dimensions of solid figures including cylinders, prisms, spheres, cones, and pyramids from volume	16 16a 16b	M5 M5a M5b	13-1 p 688-695 13-2 p 696-701 13-3 p 702-706	(2) Bees [Days 22-27]
Determine relationships between surface area and volume of similar figures	16c	M5c	13-4 p 707-713	
Apply geometric properties and relationships in solving multi-step problems in two and three dimensions (also throughout Units 2 and 3)		G4	Throughout Text	(2) Bees - throughout unit