

## Textbook Alignment to the Utah Core – Geometry

*This alignment has been completed using an “Independent Alignment Vendor” from the USOE approved list ([www.schools.utah.gov/curr/imc/indvendor.html](http://www.schools.utah.gov/curr/imc/indvendor.html).) Yes  No*

**Name of Company and Individual Conducting Alignment:**

Jim Birath

A “Credential Sheet” has been completed on the above company/evaluator and is (Please check one of the following):

On record with the USOE.

The “Credential Sheet” is attached to this alignment.

**Instructional Materials Evaluation Criteria (name and grade of the core document used to align):** Geometry Core Curriculum

**Title:** Geometry: Concepts and Applications © 2008 **ISBN#:** 0-07-879914-7

**Publisher:** Glencoe/McGraw-Hill

Overall percentage of coverage in the *Student Edition (SE) and Teacher Edition (TE)* of the Utah State Core Curriculum: \_\_\_\_\_%

Overall percentage of coverage in *ancillary materials* of the Utah Core Curriculum: \_\_\_\_\_%

**STANDARD I: Students will use algebraic, spatial, and logical reasoning to solve geometry problems.**

Percentage of coverage in the *student and teacher edition* for Standard I: \_\_\_\_\_%

Percentage of coverage not in student or teacher edition, but covered in the *ancillary material* for Standard I: \_\_\_\_\_%

**OBJECTIVES & INDICATORS**

Coverage in *Student Edition (SE) and Teacher Edition (TE)* (pg #'s, etc.)

Coverage in *Ancillary Material* (titles, pg #'s, etc.)

*Not covered in TE, SE or ancillaries* ✓

**Objective 1.1: Use inductive and deductive reasoning to develop mathematical arguments.**

**a.** Write conditional statements, converses, and inverses, and determine the truth value of these statements.

**Student Edition:**  
24-28, 40 #34, 632-639  
**Teacher Wraparound Edition:**  
EC 28, 637; ICE 25, 634;  
OEA 637; RA 635

**b.** Formulate conjectures using inductive reasoning.

**Student Edition:**  
4-9, 22 #38, 638-643  
*Graphing Calculator Exploration*  
170, 193, 316-317  
*Hands-On Geometry* 6, 169  
*Investigation* 10-11  
**Teacher Wraparound Edition:**  
EC 9; ICE 5

<b>OBJECTIVES &amp; INDICATORS</b>		<i>Coverage in Student Edition (SE) and Teacher Edition (TE) (pg #'s, etc.)</i>	<i>Coverage in Ancillary Material (titles, pg #'s, etc.)</i>	<i>Not covered in TE, SE or ancillaries ✓</i>
<b>c.</b>	Prove a statement false by using a counterexample.	<b>Student Edition:</b> 4-9		
<b>Objective 1.2: Analyze characteristics and properties of angles.</b>				
<b>a.</b>	Use accepted geometric notation for lines, segments, rays, angles, similarity, and congruence.	<b>Student Edition:</b> 12-17, 62-67, 90-94, 104-109, 110-114, 122-127, 162-167, 203-207, 316-321, 356-361, 362-367 <i>Hands-On Geometry</i> 19 <b>Teacher Wraparound Edition:</b> FA 16; ICE 13; OEA 17		
<b>b.</b>	Identify and determine relationships in adjacent, complementary, supplementary, or vertical angles and linear pairs.	<b>Student Edition:</b> 110-114, 116-121, 122-127, 128-133, 148-153, 156-161 <i>Graphing Calculator Exploration</i> 112 <b>Teacher Wraparound Edition:</b> EC 121, 126; OCE 111; RA 112, 158		
<b>c.</b>	Classify angle pairs formed by two lines and a transversal.	<b>Student Edition:</b> 148-153, 156-161, 162-167 <i>Hands-On Geometry</i> 149 <b>Teacher Wraparound Edition:</b> EC 161; OEA 153; RA 158		

<b>OBJECTIVES &amp; INDICATORS</b>		<b>Coverage in <i>Student Edition (SE)</i> and <i>Teacher Edition (TE)</i> (pg #'s, etc.)</b>	<b>Coverage in <i>Ancillary Material</i> (titles, pg #'s, etc.)</b>	<b><i>Not covered in TE, SE or ancillaries</i> ✓</b>
<b>d.</b>	Prove relationships in angle pairs.	<b>Student Edition:</b> 121 #31, 156-161, 162-167, 644-648, 649-653, 654-659 <b>Teacher Wraparound Edition:</b> RA 125, 158		
<b>e.</b>	Prove lines parallel or perpendicular using slope or angle relationships.	<b>Student Edition:</b> 162-167, 168-173, 660-665 <i>Hands-On Geometry</i> 162		
<b>Objective 1.3: Analyze characteristics and properties of triangles.</b>				
<b>a.</b>	Prove congruency and similarity of triangles using postulates and theorems.	<b>Student Edition:</b> 203-207, 210-214, 215-219, 316-321, 323 Ex1, 362-367, 368-373, 644-648, 649-653, 654-659 <i>Hands-On Geometry</i> 203, 210, 362 <i>Investigation</i> 208-209 <b>Teacher Wraparound Edition:</b> EC 207, 214, 219; RA 212, 217		
<b>b.</b>	Prove the Pythagorean Theorem in multiple ways, find missing sides of right triangles using the Pythagorean Theorem, and determine whether a triangle is a right triangle using the converse of the Pythagorean Theorem.	<b>Student Edition:</b> 256-261 <i>Hands-On Geometry</i> 262 <b>Teacher Wraparound Edition:</b> EC 261; MTL 256; TT 257		

<b>OBJECTIVES &amp; INDICATORS</b>		<b>Coverage in <i>Student Edition (SE)</i> and <i>Teacher Edition (TE)</i> (pg #'s, etc.)</b>	<b>Coverage in <i>Ancillary Material</i> (titles, pg #'s, etc.)</b>	<b><i>Not covered in TE, SE or ancillaries</i> ✓</b>
<b>c.</b>	Prove and apply theorems involving isosceles triangles.	<p><b>Student Edition:</b> 246-250, 644-648, 649-653, 654-659, 660-665 <i>Graphing Calculator Exploration</i> 246-247</p> <p><b>Teacher Wraparound Edition:</b> MTL 246</p>		
<b>d.</b>	Apply triangle inequality theorems.	<p><b>Student Edition:</b> 282-287, 290-295, 296-300 <i>Hands-On Geometry</i> 283 <i>Investigation</i> 288-289 <i>Graphing Calculator Exploration</i> 290 <i>Math in the Workplace</i> 301</p> <p><b>Teacher Wraparound Edition:</b> EC 295, 299; FA 297; MTL 290; OEA 295; RA 292, 298</p>		
<b>e.</b>	Identify medians, altitudes, and angle bisectors of a triangle, and the perpendicular bisectors of the sides of a triangle, and justify the concurrency theorems.	<p><b>Student Edition:</b> 228-233, 234-239, 240-243 <i>Hands-On Geometry</i> 228, 234-235 <i>Investigation</i> 244-245</p> <p><b>Teacher Wraparound Edition:</b> EC 233, 239, 243; RA 231, 237</p>		

<b>OBJECTIVES &amp; INDICATORS</b>		<b>Coverage in <i>Student Edition (SE)</i> and <i>Teacher Edition (TE)</i> (pg #'s, etc.)</b>	<b>Coverage in <i>Ancillary Material</i> (titles, pg #'s, etc.)</b>	<b><i>Not covered in TE, SE or ancillaries</i> ✓</b>
<b>Objective 1.4: Analyze characteristics and properties of polygons and circles.</b>				
<b>a.</b>	Use examples and counterexamples to classify subsets of quadrilaterals.	<b>Student Edition:</b> 310-315, 316-321, 322-326, 327-332, 333-338 <i>Hands-On Geometry</i> 322, 328 <i>Investigation</i> 340-341 <i>Graphing Calculator Exploration</i> 316-317 <i>Math in the Workplace</i> 339 <b>Teacher Wraparound Edition:</b> EC 315, 321; FA 335; FTC 336; OEA 332; RA 330; T 327		
<b>b.</b>	Prove properties of quadrilaterals using triangle congruence relationships, postulates, and theorems.	<b>Student Edition:</b> 323 Ex1, 325 #5 & 13, 326 #14, 329 Ex3, 331 #47 <i>Hands-On Geometry</i> 312 <i>Preparing for Proof</i> 319		
<b>c.</b>	Derive, justify, and use formulas for the number of diagonals, lines of symmetry, angle measures, perimeter, and area of regular polygons.	<b>Student Edition:</b> 310-315, 388-393, 402-407, 408-412, 413-418, 425-430 <i>Hands-On Geometry</i> 312, 408, 415, 425 <b>Teacher Wraparound Edition:</b> MTL 408, 425; RA 411		

<b>OBJECTIVES &amp; INDICATORS</b>		<b>Coverage in <i>Student Edition (SE)</i> and <i>Teacher Edition (TE)</i> (pg #'s, etc.)</b>	<b>Coverage in <i>Ancillary Material</i> (titles, pg #'s, etc.)</b>	<b><i>Not covered in TE, SE or ancillaries</i> ✓</b>
<b>d.</b>	Define radius, diameter, chord, secant, arc, sector, central angle, inscribed angle, and tangent of a circle, and solve problems using their properties.	<b>Student Edition:</b> 454-458, 462-467, 468-473, 474-477 <i>Hands-On Geometry</i> 469 <i>Math in the Workplace</i> 459 <b>Teacher Wraparound Edition:</b> EC 458, 466, 473; RA 465		
<b>e.</b>	Show the relationship between intercepted arcs and inscribed or central angles, and find their measures.	<b>Student Edition:</b> 462-467 <b>Teacher Wraparound Edition:</b> EC 466; RA 465; MTL 462		
<b>Objective 5: Perform basic geometric constructions, describing and justifying the procedures used.</b>				
<b>a.</b>	Investigate geometric relationships using constructions.	<b>Student Edition:</b> <i>Hands-On Geometry</i> 65, 99, 107, 130-131, 162, 210, 234-235 <i>Graphing Calculator Exploration</i> 112, 170, 193, 246-247, 290, 316-317, 371		
<b>b.</b>	Copy and bisect angles and segments.	<b>Student Edition:</b> <i>Hands-On Geometry</i> 65, 99, 107		
<b>c.</b>	Construct perpendicular and parallel lines.	<b>Student Edition:</b> <i>Hands-On Geometry</i> 65, 130-131, 162		

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<b>d.</b>	Justify procedures used to construct geometric figures.	The following references can be used to meet this standard. <b>Student Edition:</b> 212-214 <i>Hands-On Geometry</i> 65, 99, 107, 130-131, 162, 210, 234-235 <i>Graphing Calculator Exploration</i> 112, 170, 193, 246-247, 290, 316-317, 371		
<b>e.</b>	Discover and investigate conjectures about geometric properties using constructions.	<b>Student Edition:</b> <i>Hands-On Geometry</i> 65, 99, 107, 130-131, 162, 210, 234-235 <i>Graphing Calculator Exploration</i> 112, 170, 193, 246-247, 290, 316-317, 371		
<b>Objective 6: Analyze characteristics and properties of three-dimensional figures.</b>				
<b>a.</b>	Identify and classify prisms, pyramids, cylinders and cones based on the shape of their base(s).	<b>Student Edition:</b> 496-501 <b>Teacher Wraparound Edition:</b> EC 501; FA 499; TT 497		
<b>b.</b>	Identify three-dimensional objects from different perspectives using nets, cross-sections, and two-dimensional views.	<b>Student Edition:</b> 496-501 (especially #32) <i>Investigation</i> 502-503		

<b>OBJECTIVES &amp; INDICATORS</b>		<b>Coverage in <i>Student Edition (SE)</i> and <i>Teacher Edition (TE)</i> (pg #'s, etc.)</b>	<b>Coverage in <i>Ancillary Material</i> (titles, pg #'s, etc.)</b>	<b><i>Not covered in TE, SE or ancillaries</i> ✓</b>
<b>c.</b>	Describe the symmetries of three-dimensional figures	The following references can be integrated into classroom discussion or activities to meet this standard. <b>Student Edition:</b> 434-439, 496-501		
<b>d.</b>	Describe relationships between the faces, edges, and vertices of polyhedra.	<b>Student Edition:</b> 501 #33		
<b>STANDARD II: Students will use the language and operations of algebra to explore geometric relationships with coordinate geometry.</b>				
<b>Percentage of coverage in the <i>student and teacher edition</i> for Standard II: _____ %</b>		<b>Percentage of coverage not in student or teacher edition, but covered in the <i>ancillary material</i> for Standard II: _____ %</b>		
<b>OBJECTIVES &amp; INDICATORS</b>		<b>Coverage in <i>Student Edition (SE)</i> and <i>Teacher Edition (TE)</i> (pg #'s, etc.)</b>	<b>Coverage in <i>Ancillary Material</i> (titles, pg #'s, etc.)</b>	<b><i>Not covered in TE, SE or ancillaries</i> ✓</b>
<b>Objective 2.1: Describe the properties and attributes of lines and line segments using coordinate geometry.</b>				
<b>a.</b>	Verify the classifications of geometric figures using coordinate geometry to find lengths and slopes.	<b>Student Edition:</b> 168-173, 262-267, 660-665 <b>Teacher Wraparound Edition:</b> ICE 662-663		
<b>b.</b>	Find the distance between two given points and find the coordinates of the midpoint.	<b>Student Edition:</b> 76-81, 262-267, 660-665 <b>Teacher Wraparound Edition:</b> EC 81; RA 80		

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<b>c.</b>	Write an equation of a line perpendicular or a line parallel to a line through a given point.	<b>Student Edition:</b> 174-179 <b>Teacher Wraparound Edition:</b> EC 179		
<b>Objective 2.2: Describe spatial relationships using coordinate geometry.</b>				
<b>a.</b>	Graph a circle given the equation in the form, and write the equation when given the graph. $(x-h)^2 + (y-k)^2 = r^2$	<b>Student Edition:</b> 618-622 <i>Math in the Workplace</i> 623 <b>Teacher Wraparound Edition:</b> EC 622; RA 620		
<b>b.</b>	Determine whether points in a set are collinear.	<b>Student Edition:</b> 12-17, 66 #5, 168-173		
<b>STANDARD III: Students will extend concepts of proportion and similarity to trigonometric ratios.</b>				
<b>Percentage of coverage in the <i>student and teacher edition</i> for Standard III: _____ %</b>		<b>Percentage of coverage not in student or teacher edition, but covered in the <i>ancillary material</i> for Standard III: _____ %</b>		
<b>OBJECTIVES &amp; INDICATORS</b>		<b>Coverage in <i>Student Edition (SE)</i> and <i>Teacher Edition (TE)</i> (pg #'s, etc.)</b>	<b>Coverage in <i>Ancillary Material</i> (titles, pg #'s, etc.)</b>	<b><i>Not covered in TE, SE or ancillaries</i> ✓</b>
<b>Objective 3.1: Use triangle relationships to solve problems.</b>				
<b>a.</b>	Solve problems using the properties of special right triangles, e.g., 30°, 60°, 90° or 45°, 45°, 90°.	<b>Student Edition:</b> 554-558, 559-563 <i>Hands-On Geometry</i> 554, 559 <b>Teacher Wraparound Edition:</b> EC 558, 563; RA 562		

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<b>b.</b>	Identify the trigonometric relationships of sine, cosine, and tangent with the appropriate ratio of sides of a right triangle.	<b>Student Edition:</b> 564-569, 572-577 <i>Graphing Calculator Exploration</i> 574 <i>Investigation</i> 570-571 <b>Teacher Wraparound Edition:</b> EC 569		
<b>c.</b>	Express trigonometric relationships using exact values and approximations.	Approximations are discussed on the following pages. <b>Student Edition:</b> 564-569; 572-577		
<b>Objective 3.2: Use the trigonometric ratios of sine, cosine, and tangent to represent and solve for missing parts of triangles.</b>				
<b>a.</b>	Find the angle measure in degrees when given the trigonometric ratio.	<b>Student Edition:</b> 564-569, 572-577 <b>Teacher Wraparound Edition:</b> ICE 567, 574		
<b>b.</b>	Find the trigonometric ratio given the angle measure in degrees, using a calculator.	<b>Student Edition:</b> 564-569, 572-577 <i>Investigation</i> 570-571 <b>Teacher Wraparound Edition:</b> ICE 565, 566, 573		

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<b>c.</b>	Find unknown measures of right triangles using sine, cosine, and tangent functions and inverse trigonometric functions.	<b>Student Edition:</b> 564-569, 572-577 <i>Investigation</i> 570-571 <b>Teacher Wraparound Edition:</b> ICE 565, 566, 567, 573, 574		
<b>STANDARD IV: Students will use algebraic, spatial, and logical reasoning to solve measurement problems.</b>				
<b>Percentage of coverage in the <i>student and teacher edition</i> for Standard IV: _____ %</b>		<b>Percentage of coverage not in student or teacher edition, but covered in the <i>ancillary material</i> for Standard IV: _____ %</b>		
<b>OBJECTIVES &amp; INDICATORS</b>		<b>Coverage in <i>Student Edition (SE)</i> and <i>Teacher Edition (TE)</i> (pg #'s, etc.)</b>	<b>Coverage in <i>Ancillary Material</i> (titles, pg #'s, etc.)</b>	<b><i>Not covered in TE, SE or ancillaries</i> ✓</b>
<b>Objective 4.1: Find measurements of plane and solid figures.</b>				
<b>a.</b>	Find linear and angle measures in real-world situations using appropriate tools or technology.	<b>Student Edition:</b> 56-61, 96-101 <i>Hands-On Geometry</i> 149, 169, 283 <b>Teacher Wraparound Edition:</b> FA 60; IS 58, 97; OEA 61		
<b>b.</b>	Develop surface area and volume formulas for polyhedra, cones, and cylinders.	<b>Student Edition:</b> 510-515, 516-521, 522-527 <i>Hands-On Geometry</i> 510, 522		

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<b>c.</b>	Determine perimeter, area, surface area, lateral area, and volume for prisms, cylinders, pyramids, cones, and spheres when given the formulas.	<b>Student Edition:</b> 35-40, 413-418, 419-424, 425-430, 504-509, 510-515, 516-521, 522-527, 528-533, 534-539 <i>Graphing Calculator Exploration</i> 506 <i>Hands-On Geometry</i> 415, 420, 425, 522 <b>Teacher Wraparound Edition:</b> RA 427		
<b>d.</b>	Calculate or estimate the area of an irregular region.	<b>Student Edition:</b> 413-418 <i>Hands-On Geometry</i> 415 <b>Teacher Wraparound Edition:</b> OEA 418		
<b>e.</b>	Find the length of an arc and the area of a sector when given the angle measure and radius.	<b>Student Edition:</b> 482 #27; 483-487		
<b>Objective 4.2: Solve real-world problems using visualization and spatial reasoning.</b>				
<b>a.</b>	Solve problems using the Pythagorean Theorem and its converse.	<b>Student Edition:</b> 256-261 <i>Hands-On Geometry</i> 262 <b>Teacher Wraparound Edition:</b> EC 261; MTL 256; TT 257		

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<b>b.</b>	Solve problems using the distance formula.	<b>Student Edition:</b> 262-266, 660-665 <i>Hands-On Geometry</i> 262, 660 <b>Teacher Wraparound Edition:</b> EC 267; OEA 267; RA 265		
<b>c.</b>	Solve problems involving trigonometric ratios.	<b>Student Edition:</b> 564-569, 572-577 <i>Graphing Calculator Exploration</i> 574 <i>Investigation</i> 570-571 <b>Teacher Wraparound Edition:</b> EC 569, 577; ICE 565, 566, 567, 573, 574		
<b>d.</b>	Solve problems involving geometric probability.	<b>Student Edition:</b> 483-487 <b>Teacher Wraparound Edition:</b> ICE 484; OEA 487; RA 486		