

Independent School District of Boise City

Intermediate Geometry

District Course #0825

Course Description

Open to: Grades 11, 12 One Year Course

Prerequisite: Intermediate Algebra 1, Instructor/Counselor Approval

Content: Students will study extended concepts of algebra, geometry and probability with an emphasis on geometry and introductory advanced algebra using an integrated approach.

Adopted Materials

Title: Geometry: Tools For A Changing World

Edition: 1998

Publisher: Prentice-Hall, Inc.

ISBN: 0-13-411067-6

Course Scope

Unit 1	Tools of Geometry	3 weeks
Unit 2	Investigating Geometric Figures	3 weeks
Unit 3	Triangle Relationships	2 weeks
Unit 4	Planar Measurement	3 weeks
Unit 5	Spatial Measurement	3 weeks
Unit 6	Reasoning and Parallel Lines	2 weeks
Unit 7	Transformations	2 weeks
Unit 8	Proving Triangles Congruent	2 weeks
Unit 9	Quadrilaterals	2 weeks
Unit 10	Similarity	4 weeks
Unit 11	Right Triangle Trigonometry	3 weeks
Unit 12	Chords, Secants, and Tangents	4 weeks

Intermediate Geometry		District Reference 0825
Unit 1	Tools of Geometry-Algebra Review	3 weeks

Instructional Objective			Standard Reference
0825.01 Understand and apply basic geometric concepts.			
No.	Performance Objective	Resource Reference	Assessment Correlation
01	Use inductive reasoning to describe patterns.	p. 5	TMA
02	Describe the relationships between points, lines and planes.	pp. 13, 14, 18, 19	TMA
03	Define and apply terms and notation associated with lines and planes.	pp. 18, 19	EOC, TMA

04	Find the length of a segment.	p.25	EOC, TMA
05	Measure and classify angles.	pp. 27, 28	EOC, TMA
06	Apply angle/segment addition.	pp. 26, 28	EOC, TMA
07	Understand and apply basic geometric terms. (midpoint, perpendicular lines, perpendicular bisector and angle bisector)	pp. 33, 34	EOC, TMA
08	Construct, using a straightedge and compass, a two-dimensional figure from a set of instructions.	pp. 40, 42	EOC, TMA
09	Identify special angle relationships (vertical, adjacent, complementary, and supplementary).	p. 48	EOC, TMA
10	Find numerical unknowns related to the coordinate plane (distance and midpoint)	pp. 54, 55	EOC, TMA

Unit 2	Investigating Geometric Figures	3 weeks
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Instructional Objective		Standard Reference	
0825.02 Expand the understanding of basic geometric concepts by investigating shapes.			
No.	Performance Objective	Resource Reference	Assessment Correlation
01	Relate the measures of interior and exterior angles of a triangle (sum of the interior angles, remote exterior angles).	pp. 68-70	EOC, TMA
02	Classify triangles by their angle measure and side length.	p. 71	EOC, TMA
03	Classify polygons (convex, concave, equilateral, equiangular and regular).	pp. 76, 78	EOC, TMA
04	Find the measure of the angles of a polygon and the sum of the interior and exterior angles of a polygon.	pp. 77, 78	EOC, TMA
05	Graph lines in the coordinate plane.	p. 84	EOC, TMA
06	Classify lines as parallel or perpendicular by their slopes.	p. 85	EOC, TMA
07	Define and classify special quadrilaterals.	p. 91	EOC, TMA
08	Use vocabulary associated with circles (circle, radius, diameter, central angle, semicircle, minor arc, major arc, adjacent arcs).	pp. 96-98	EOC, TMA
09	Find the measure of arcs and central angles of circles.	p. 98	EOC, TMA
10	Display data in a circle graph.	p. 99	EOC, TMA
11	Differentiate between similar and congruent figures.	pp. 102-103	EOC, TMA
12	Draw isometric and orthographic views of objects.	pp. 110-111	TMA

Unit 3	Triangle Relationships	3 weeks
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Instructional Objective			Standard Reference
0825.03 Understand and use a variety of reasoning and problem solving skills.			
No.	Performance Objective	Resource Reference	Assessment Correlation
01	Define and apply terms associated with conditional statements and mathematical reasoning.	pp. 182-184	EOC, TMA
02	Apply properties of isosceles triangles.	p. 189	EOC, TMA
03	Define mid-segment and apply its properties.	p. 201	EOC, TMA
04	Apply triangle inequalities to solve problems.	pp. 213-215	EOC, TMA
05	Apply properties of bisectors (angle and perpendicular).	p. 219	EOC, TMA
06	Define and apply intersections of special segments of a triangle (median, altitude, angle bisector, and perpendicular bisector).	pp. 227-230	EOC, TMA

Unit 4	Planar Measurement	4 weeks
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Instructional Objective			Standard Reference
0825.04 Use formulas to determine planar measurements of polygons and circles.			
No.	Performance Objective	Resource Reference	Assessment Correlation
01	Calculate the area and perimeter of rectangles.	pp. 243-244	EOC, TMA
02	Calculate the area of triangles and parallelograms.	pp. 249-251	EOC, TMA
03	Simplify radicals.	p. 255	EOC, TMA
04	Find the missing side lengths of a right triangle using the Pythagorean Theorem.	p.257	EOC, TMA
05	Classify a triangle as obtuse, acute or right by applying the converse of the Pythagorean Theorem.	p. 258	EOC, TMA
06	Apply the properties of special right triangles (30-60-90 & 45-45-90).	pp. 263-265	EOC, TMA
07	Calculate the area of a trapezoid.	p. 269	EOC, TMA
08	Calculate the area of a regular polygon.	p. 274	EOC, TMA
09	Solve problems involving arc length of a circle.	pp. 279-281	EOC, TMA
10	Calculate the areas of circles, sectors and segments of circles.	pp. 285-287	EOC, TMA

Unit 5	Spatial Measurement	4 weeks
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Instructional Objective			Standard Reference
0825.05 Perform calculations for surface area and volume of three dimensional figures.			
No.	Performance Objective	Resource Reference	Assessment Correlation
01	Identify vocabulary associated with spatial figures.	pp. 302, 309-311, 316, 318. 340.	EOC, TMA
02	Calculate the surface area of prisms and cylinders.	pp. 310-311	EOC, TMA
03	Calculate the surface area of pyramids and cones.	pp. 317-318	EOC, TMA
04	Calculate the volumes of prisms and cylinders.	pp. 324-325	EOC, TMA
05	Calculate the volumes of pyramids and cones.	pp. 331-332	EOC, TMA
06	Calculate the surface area and volume of spheres.	pp. 339-340	EOC, TMA
07	Calculate the volume of composite space figures.	pp. 344-345	EOC, TMA
08	Calculate geometric probability.	pp. 348-350	EOC, TMA

Unit 6	Reasoning and Parallel Lines	1 week
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Instructional Objective			Standard Reference
0825.06 Deduce the parallel/perpendicular relationship between lines through calculations and constructions.			
No.	Performance Objective	Resource Reference	Assessment Correlation
01	Identify and calculate the measure of angles formed by two parallel lines and a transversal.	pp. 363-364	EOC, TMA
02	Establish if two lines are parallel.	pp. 371-372	EOC, TMA
03	Construct parallel and perpendicular lines.	pp. 377-380	EOC, TMA
04	Draw objects in one-and two point perspective.	pp. 386-387	TMA

Geometry		District Reference
		0825
Unit 7	Transformations	2 weeks

Instructional Objective			Standard Reference
0825.07 Use coordinate geometry to solve problems involving transformations.			
No.	Performance Objective	Resource Reference	Assessment Correlation
01	Identify the result of a specific transformation or kind of transformation used to create a given result.	p.124-177, 371,144-150, 175-176	EOC, TMA
02	Relate line symmetry to reflections.	p. 125-130, 151, 174	EOC, TMA
03	Relate rotational symmetry and rotations.	p. 138-143, 175	EOC, TMA
04	Find magnitudes and directions of vectors.	p. 133-137	EOC, TMA

Geometry		District Reference 0825
Unit 8	Congruent Triangles	3 ½ weeks

Instructional Objective		Standard Reference	
0825.08 Describe, classify and prove relationships between triangles.		G.2.2.2a,b, G.4.1.1d,f,g,i,, G.4.1.2a, G.4.1.3c	
No.	Performance Objective	Resource Reference	Assessment Correlation
01	Identify and classify triangles by their angle measure and side lengths. (e.g., acute, obtuse, right, scalene, isosceles, equilateral.)	p. 263-268	EOC, TMA
02	Find angles related to triangles-interior/exterior.	p. 69-70, 117, 615	EOC, TMA
03	Describe and apply the congruence relationships for triangles (e.g., SSS, SAS, ASA, AAS, HL.)	p. 406-438, 441-443	EOC, TMA
04	Use CPCTC in congruence relationships.	pp. 102	EOC, TMA

Unit 9	Quadrilaterals	1 week
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Instructional Objective		Standard Reference	
0825.07 Apply properties of quadrilaterals.			
No.	Performance Objective	Resource Reference	Assessment Correlation
01	Apply the properties of parallelograms.	pp. 448-450	EOC, TMA
02	Determine if a quadrilateral is a parallelogram.	pp. 456	EOC, TMA
03	Apply properties of special parallelograms (rectangles, rhombuses and squares).	pp. 463-464	EOC, TMA
04	Apply properties of trapezoids and kites.	pp. 470-471	EOC, TMA
05	Use coordinate geometry to prove statements.	pp. 483-484	TMA

Unit 10	Similarity	4 weeks
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Instructional Objective		Standard Reference	
0825.10 Use ratio and proportions to solve problems involving similar shapes.			
No.	Performance Objective	Resource Reference	Assessment Correlation
01	Use ratio and proportion in similarity problems.	pp. 496-498	EOC, TMA
02	Solve for parts of right triangles using the geometric mean.	pp. 511-512	EOC, TMA
03	Solve problems in triangles using proportionality.	pp. 517-519	EOC, TMA
04	Use proportions to find perimeters and areas of	pp. 525,532	EOC, TMA

similar figures.		
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Unit 11	Right Triangle Trigonometry	4 weeks
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Instructional Objective		Standard Reference	
0825.11 Apply trigonometry ratios to right triangles and add vectors.			
No.	Performance Objective	Resource Reference	Assessment Correlation
01	Calculate tangent ratios in right triangles.	p. 544	EOC, TMA
02	Calculate sine and cosine ratios in right triangles.	p. 551	EOC, TMA
03	Apply trigonometry ratios to find missing lengths or angle measures of right triangles.	pp. 544-546, 551-553	EOC, TMA
04	Solve right triangle problems involving angles of elevation and depression.	p. 556	EOC, TMA
05	Calculate the magnitude and direction of vectors.	p. 563	EOC, TMA
06	Add vectors to solve problems.	p. 568	EOC, TMA
07	Apply trigonometry to find areas.	pp. 573-575	EOC, TMA

Unit 12	Chords, Secants and Tangents	4 weeks
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Instructional Objective		Standard Reference	
0825.10 Apply properties of chords, secants and tangents to solve problems.			
No.	Performance Objective	Resource Reference	Assessment Correlation
01	Write and apply the equation of a circle.	p. 586	EOC, TMA
02	Identify inscribed and circumscribed shapes.	p. 596	EOC, TMA
03	Apply the perpendicular relationship between a radius and its point of tangency.	pp. 593-596	EOC, TMA
04	Find the lengths of chords and the measure of arcs.	pp. 601-602	EOC, TMA
05	Apply the relationships between inscribed angles and their intercepted arcs.	pp. 608-610	EOC, TMA
06	Find the measure of angles and arcs formed by chords, secants and tangents.	p. 615	EOC, TMA
07	Find the lengths of segments associated with circles.	pp. 621-622	EOC, TMA