

Concept Geometry

CONCEPT GEOMETRY

Note: All of the following skills should be practiced with a moderate algebraic emphasis.

(revised 2008)						
	Levels: I - introduced; P - practiced; M - mastered		Current Text			
CONCEPT	SKILLS	LEVEL	CHAPTER	TEACHING NOTES	STATE GOALS	
I. Geometric Terms & Building Blocks	1. Understand point, line, plane	PM	1		9.A.4	
	2. Vocabulary -- classification of angles & polygons, circle, midpoint, median, bisector, perpendicular, parallel, ray, Cartesian plane, skew, vertex, vertical, supplementary, complementary, colinear, coplanar, segment, diagonal	IPM				9.B.3-4 9.C.3
	3. Understand congruence.	PM				
	4. Measure angles.	PM				
	5. Circle, arc, chord, diameter, tangent	PM				
	6. Writing a definition - counterexamples	PM				
	7. Classify triangles and quadrilaterals	PM				
	8. Use pictures to solve problems.	PM				
	9. Space Geometry	IPM				
	10. Use nets to represent solids.	IP				
II. Geometrical Reasoning	1. Use inductive reasoning to make predictions in number/picture patterns	PM	2	Limit use of deductive reasoning/proofs throughout course	9.C.3-4	
	2. Definition of and making conjectures	IPM		Emphasized throughout the course		
	3. Function rules and finding the nth term of a sequence	IPM				
III. Angles and Parallel Lines	1. Linear pair/vertical angles	IPM	2		9.C.3-4	
	2. Transversal and congruence	IPM			9.A.3c	
	3. names of special angle pairs	IPM				
	4. use inductive reasoning	PM				
IV. Constructions (may skip this unit)	1. Use a compass and straightedge to duplicate segment, angle	IPM	3	Use Geometer's Sketchpad per teacher discretion	9.A.3a	
	2. Definition: Sketch, draw, construct	IPM				
	3. Perpendicular bisector	IPM				
	4. Shortest distance from a point to a line	IPM				
	5. Altitude of a triangle	IPM				
	6. Angle bisectors	IPM				
	7. Parallel lines	IPM				

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V. Triangles	1. Vocabulary -- types of triangles, interior and exterior angles.	PM	4		9.C.3-5
					9.B
	2. Triangle Sum and Third Angle Conjectures	PM			9.A.3, 5
	3. Isosceles Triangles	PM			9.D.3
	4. Triangle equalities and inequalities	IPM			7.A.4
	5. Show triangles congruent using SSS, AAS, SAS and ASA arguments.	IPM			7.B.3-4 8.A.4
	6. Use flow charts to show congruent triangles.	IPM			
	7. Use CPCTC to prove statements.	IPM			
VI. Polygons	1. Vocabulary -- regular, irregular	PM	5		9.B.3-4
	2. Sums: interior/exterior angles	IPM			
	3. Definitions and properties of kites, trapezoids, parallelograms, rhombuses, rectangles, squares	IPM			
	4. Midsegments of triangles/trapezoids	IPM			
VII. Circles	1. Vocabulary -- radius, diameter, secant, tangent, arcs, central angle, chord, inscribed angle, semicircle.	IPM	6		9.A.5 9.B.3-5 9.C.3-4
	2. Properties of central/inscribed angles	IPM			
	3. Chord and tangent properties	IPM			
	4. Cyclic quadrilaterals	IPM			
	5. Pi and circumference w/ applications	PM			
	6. Arc length & arc measure	IPM			
VIII. Area	1. Understand perimeter & area	PM	8	These problems should be straightforward, with little emphasis on using area to calculate characteristics of shapes	9.B.3-5
	2. Vocabulary -- hypotenuse, leg, base, altitude, sector, annulus, base,	IPM			9.A.3-5
	3. Compute area of rectangles, parallelograms, triangles, trapezoids, kites, regular polygons, circles	IPM			7.A.3-4 7.B.3 7.B.5 7.C.3
	4. Circle area problems, including sectors, segments, and annulus	IPM			9.C.3-5
	5. Real-world applications of area	IPM			
IX. Surface Area & Volume	1. Understand concepts of SA & V	PM	10	These problems should be straightforward, with little emphasis on using volume to calculate characteristic	9.B.3-5
	2. Definitions: polyhedron, base, altitude, lateral face, edge, vertex, right/oblique, slant height	IPM			9.A.3-5 7.A.3-4

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	3. Compute SA & V of	IPM		of solids	7.B.3
	a. Prisms & pyramids				7.B.5
	b. Cylinders & cones				7.C.3
	c. Spheres & hemispheres				9.C.3-5
	4. Real-world applications	IPM			
X. Coordinate Geometry	1. Understand and use the Pythagorean Theorem.	PM	9	All but Pythagorean Theorem are supplemented.	9.D.3 9.C.4
	2. Understand and use the distance formula.	PM			
	3. Understand and use the midpoint formula.	PM			
	4. Equation of a circle.	IPM			
	5. Real-world applications.	IPM			
XI. Similarity	1. Apply the concept of similar shapes for finding indirect measurement.	PM	11		9.D.3 9.B.3-5
	2. Vocabulary -- similar, ratio, proportion, geometric mean.	PM			9.A.3-5 6.D.3-4
	3. Prove triangles similar using AA, SSS, and SAS.	IPM			7.C.3-4
	4. Real-world applications.	IPM			
	5. Proportions in relation to parallel lines and similar figures; angle bisector of a triangle.	IPM			
XII. Right Triangle Trigonometry	1. Understand right triangle ratios.	IPM	12		9.D.3-4
	2. Vocabulary -- sine, cosine, tangent, adjacent, opposite.	IPM			
	3. Find right triangle ratios using the calculator and trig. tables.	IPM			
	4. Calculate angles using inverse functions.	IPM			
	5. Apply to real-world situations.	IPM			
XIII. Transformations	1. Transform shapes using translations, rotations, reflections, tessellations.	PM	7		9.A.3-5 9.B.3 9.C.3-5
	2. Vocabulary -- pre-image, image,	PM			

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	isometry, symmetry, tiling, dilations, compositions.				
Current Text:					
Discovering Geometry					
Key Curriculum Press					
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