

MATH COURSE: GEOMETRY CURRICULUM MAP  
ICS-ADDIS

TEXTBOOK: GEOMETRY, Larson et al., McDougal Littell

UPDATED Jan 24/09

Quarter One															
Unit title	UNIT 1 - ESSENTIALS OF GEOMETRY				UNIT 2 - REASONING & PROOF				UNIT 3 - PARALLEL & PERPENDICUALR LINES						
Knowledge / Standards	1 Number & Operations 2 Algebra 3 Geometry		4 Measurement 9 Connections		1 Number & Operations 2 Algebra 3 Geometry		4 Measurement 7 Reasoning & Proof		1 Number & Operations 2 Algebra 3 Geometry		4 Measurement 5 Data Analysis				
Skills / Benchmarks	NCTM	SECT.	Skills		LEVEL	NCTM	SECT.	Skills		LEVEL	NCTM	SECT.	Skills		LEVEL
		1.1	Identify points, lines, and planes. Sketch geometric figures		R		2.1	Describe patterns & use inductive reasoning Make and support conjectures		I M		3.1	Identify angle pairs formed by 3 intersecting lines		I M
		1.2	Use segment postulates to identify congruent segments		I M		2.2	Write definitions & nalyze conditional statements		I M		3.2	Identify & calculate angles formed by transversal & parallel lines (numeric & alphanumeric)		M
		1.3	Use midpoint & distance formulas on a coordinate plane		M		2.3	Apply deductive reasoning to form logical argument Construct and analyze truth tables using symbolic notation		I M		3.3	Use angle relationships to prove lines are parallel		M
		1.4-1.5	Name measure, & classify angles. Identify and apply concepts of special angles for finding angles measures (numerical & alpha-numeric): -complementary -supplmentary -adjacent		M		2.4	Use postulates involving : -diagrams -points -lines -planes		I M		3.4	Find & compare slopes of lines given the graph		R
		1.6-1.7	Classify polygons Calculate for polygons: -dimensions -perimeter/circumference -area		R		2.5	Use algebraic properties in logical aruments i.e. apply properties of equality to an argument/reasoning		I M		3.5	Write & graph linear equations in: -point slope form -standard form -slope-intercept form		R
							2.6-2.7	Use algebraic properties in logical aruments i.e. apply properties of equality to an argument/reasoning Write proofs using geometric theorems to prove statements about (two column proof): -segments & angles -special pairs of angles		I M		3.6	Find distance between a point & a line Prove Theorems about perpendicular lines		I M

LEVELS: I: introduce M: master R: reinforce

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<b>Attitudes</b>	<ul style="list-style-type: none"> <li>verbal communicators</li> </ul>	<ul style="list-style-type: none"> <li>stamina and persistent</li> </ul>	<ul style="list-style-type: none"> <li>metacognition (i.e. develop proofs by asking what am I trying to show and how can I show this?)</li> </ul>
<b>Assessments</b>	<ul style="list-style-type: none"> <li>Quiz: draw planes &amp; identify lines &amp; points, identify angles, thie rcompliments &amp; supplements, use segment add. postulates</li> <li>Test: identify pts, lines, &amp; planes, segment, add. post., distance formula, angle add. &amp; angle relationships (2 lines), polygons, area, perimeter</li> </ul>	<ul style="list-style-type: none"> <li>Quiz: patterns, counter example, if-then, laws of detachment &amp; syllogism, draw pts/lines/planes &amp; properties of equalities</li> <li>Test: patterns, counterexample, changing if-then statements, pts/lines/planes conclusion, 4 two-column proofs, (2 algebraic, 2 geometric)</li> </ul>	<ul style="list-style-type: none"> <li>Quiz: angle relationships &amp; relationships with parallel lines, parallel lines &amp; slope converses</li> <li>Test: relationship of parallel &amp; angle pairs, perpendicular lines, 3 lines, equations of lines (1proof)</li> </ul>
<b>Key Questions / Essential Ideas</b>	<ul style="list-style-type: none"> <li>Describing geometric figures</li> <li>Measuring geometric figures</li> <li>Understanding equality and congruence</li> </ul>	<ul style="list-style-type: none"> <li>Use inductive and deductive reasoning</li> <li>Understanding geometric relationships in diagrams</li> <li>Writing proofs of geometric relationships</li> </ul>	<ul style="list-style-type: none"> <li>Using properties of parallel and perpendicular lines</li> <li>Proving relationships using angle measures</li> <li>Making connections to lines in algebra</li> </ul>
<b>Instructional Activities</b>	<ul style="list-style-type: none"> <li>written description of how to solve a problem</li> <li>model problem</li> <li>classwork from text (1.1-1.7)</li> <li>classifying polygons graphic organizers</li> <li>using graph paper to get 36 sq. cm shapes</li> <li>formula guide</li> <li>construct bisect segments &amp; angles with straight edge &amp; compass</li> <li>postulates &amp; theorems on posters</li> <li>word wall</li> </ul>	<ul style="list-style-type: none"> <li>illustrate postulates/theorems on points/lines/</li> <li>model problems</li> <li>class work from text (2.1-2.7)</li> <li>develop patterns &amp; from conjectures or recognize that some patterns can continue in different ways</li> <li>conditional statement with table &amp; truth tables</li> <li>logic puzzle on historical mathematicians</li> <li>postulate framework</li> <li>use algebra tiles for properties of equalities</li> <li>interpret diagrams</li> <li>posters of postulates &amp; theorems</li> <li>word wall</li> </ul>	<ul style="list-style-type: none"> <li>illustrate vocabulary for ch 1-3</li> <li>human angle relationships</li> <li>model problems</li> <li>class work from text 3.1-3.6</li> <li>folding perpendicular angles</li> <li>make tables for equations</li> <li>look at parachute test results</li> <li>postulates &amp; theorems on posters</li> <li>word wall</li> <li>explore "taxi cab" geometry</li> </ul>
<b>Resources</b>	<ul style="list-style-type: none"> <li>GEOMETRY, Larson et al., McDougal Littell</li> </ul>	<ul style="list-style-type: none"> <li>GEOMETRY, Larson et al., McDougal Littell</li> </ul>	<ul style="list-style-type: none"> <li>GEOMETRY, Larson et al., McDougal Littell</li> </ul>
<b>Technology</b>	<ul style="list-style-type: none"> <li></li> </ul>	<ul style="list-style-type: none"> <li></li> </ul>	<ul style="list-style-type: none"> <li></li> </ul>
<b>Library</b>	<ul style="list-style-type: none"> <li></li> </ul>	<ul style="list-style-type: none"> <li></li> </ul>	<ul style="list-style-type: none"> <li></li> </ul>

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	QuarterTwo														
Unit title	UNIT 4 - CONGRUENT TRIANGLES				UNIT 5 - RELATIONSHIPS WITHIN TRIANGLES				UNIT 6 - SIMILARITY						
<b>Knowledge / Standards</b>	1 Number & Operations		4 Measurement		1 Number & Operations		4 Measurement		1 Number & Operations		4 Measurement				
	2 Algebra		7 Reasoning & Proof		2 Algebra		6 Problem Solving		2 Algebra		6 Problem Solving				
	3 Geometry				3 Geometry				3 Geometry						
<b>Skills / Benchmarks</b>	NCTM	SECT.	Skills		LEVEL	NCTM	SECT.	Skills		LEVEL	NCTM	SECT.	Skills		LEVEL
		4.1	Classify triangles & find measures of their angles & apply triangle sum properties		I M		5.1	Use properties of midsegments & write coordinate proofs		I M		6.1	Write & solve ratios, proportions, geometric means		M
		4.2 - 4.7	Identify similar & congruent figures using ASA, SSS, SAS, & HL		I M		5.2	Use perpendicular bisectors to solve problems		I M		6.3	Use proportions to identify similar polygons		R
							5.3	Use angle bisectors of triangles to find distance relationships		I M		6.6	Use proportionality theorems with a triangle or parallel lines		I M
							5.4	Use medians & altitudes of triangles		I M		6.7	Optional: perform similarity transformations (dilations)		I M
							5.5	Use inequalities in a triangle to find possible side lengths of triangles using real life problems.		I M		6.4- 6.5	Prove triangles congruent by ASA, SSS, SAS, & HL		M
							5.6	Use inequalities in a triangle & indirect proof to make comparisons in two triangles		I M					
<b>Attitudes</b>	• flexibility				• accuracy				• broad thinker						
<b>Assessments</b>	• Quiz: classify triangles, choose how to prove triangles are equivalent and prove congruence				•				•						
<b>Key Questions / Essential Ideas</b>	• How can triangles be categorized based on angle and side relationship • What measurable combinations of sides & angles do we need to prove 2 triangles are equivalent • Using coordinate geometry to investigate triangle relationships.				• Using properties of special segments in triangles • Using triangle inequalities to determine what triangles are possible • Extending methods for justifying and proving relationships				• Using ratios and proportions to solve geometry problems • Showing that triangles are similar • Using indirect measurement and similarity						

LEVELS: I: introduce M: master R: reinforce

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	QuarterTwo		
<b>Instructional Activities</b>	<ul style="list-style-type: none"> <li>making "different" triangles               <ul style="list-style-type: none"> <li>cut out triangles to model classifications</li> <li>test that angles = 180 degrees</li> <li>with 2 sides &amp; an angle &lt; the same or 3 angles match</li> </ul> </li> <li>model problems</li> <li>class work from text 4.1-4.8</li> <li>make SSS triangles and quad. from cardboard to check equivalence &amp; stability</li> <li>posters of theorems and postulates</li> <li>word wall</li> <li>find equivalent partners</li> <li>use polygons in laminate to explore transformations &amp; in chapter 9</li> </ul>	<ul style="list-style-type: none"> <li>model problems</li> <li>word wall</li> <li>posters of theorems and postulates</li> <li>class work in text 5.1-5.6</li> </ul>	<ul style="list-style-type: none"> <li>class work from text 6.1-6.5</li> </ul>
<b>Resources</b>	<ul style="list-style-type: none"> <li>GEOMETRY, Larson et al., McDougal Littell</li> </ul>	<ul style="list-style-type: none"> <li>GEOMETRY, Larson et al., McDougal Littell</li> </ul>	<ul style="list-style-type: none"> <li>GEOMETRY, Larson et al., McDougal Littell</li> </ul>
<b>Technology</b>	<ul style="list-style-type: none"> <li></li> </ul>	<ul style="list-style-type: none"> <li></li> </ul>	<ul style="list-style-type: none"> <li></li> </ul>
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Quarter Three				
Unit title	<u>UNIT 7 - RIGHT TRIANGLES &amp; TRIG</u>		<u>UNIT 8 - PROPERTIES OF TRANSFORMATIONS</u>	
Knowledge / Standards				
Skills / Benchmarks	SKILLS	LEVEL	SKILLS	LEVEL
	Apply Pythagorean Theorem to find side length	R	Use a vector to translate a figure and to write a translation rule.	I
	Use Pythagorean theorem (& its converse) to solve problems	M	Verify congruence.	M
	Use properties of altitude to solve similar right triangles	I M	Reflect a figure in any given line.	I M
	Use special triangles to find length of sides	I M	Use drawing tools and matrices to draw dilations.	I
	Apply Sine, Cosine, & Tangent (including inverse of ratios) ratio to solve triangles	M	Determine the scale factor of an enlargement/reduction.	M
			Perform translations using matrix operations	I M
			Reflect and rotate a figure in any given line and point. Perform multiple reflections and compositions of 2 or more transformations. Identify line and rotational symmetries of a figure	I M
Attitudes				
Assessments				

LEVELS: I: introduce M: master R: reinforce

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	Quarter Three		
<b>Key Questions / Essential Ideas</b>	<ul style="list-style-type: none"> <li>Using the Pythagorean Theorem and its converse</li> <li>Using special relationships in right triangles</li> <li>Using trig ratios to solve right triangles</li> </ul>	<ul style="list-style-type: none"> <li>Performing congruence and similarity transformations</li> <li>Making real-world connections to symmetry and tessellations</li> <li>Applying matrices and vectors in geometry</li> </ul>	<ul style="list-style-type: none"> <li></li> </ul>
<b>Instructional Activities</b>	<ul style="list-style-type: none"> <li></li> </ul>	<ul style="list-style-type: none"> <li></li> </ul>	<ul style="list-style-type: none"> <li></li> </ul>
<b>Resources</b>	<ul style="list-style-type: none"> <li>GEOMETRY, Larson et al., McDougal Littell</li> </ul>	<ul style="list-style-type: none"> <li>GEOMETRY, Larson et al., McDougal Littell</li> </ul>	<ul style="list-style-type: none"> <li>GEOMETRY, Larson et al., McDougal Littell</li> </ul>
<b>Technology</b>	<ul style="list-style-type: none"> <li></li> </ul>	<ul style="list-style-type: none"> <li></li> </ul>	<ul style="list-style-type: none"> <li></li> </ul>
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Quarter Four				
Unit title	<u>UNIT 9 - PROPERTIES OF CIRCLES</u>		<u>UNIT 10 - SURFACE AREA &amp; VOLUME OF SOLIDS</u>	
Knowledge / Standards				
Skills / Benchmarks	SKILLS	LEVEL	SKILLS	LEVEL
	Use properties of a tangent to a circle	I M	Identify solids	M
	Find arc measures	I M	Find surface areas of: -prisms & cylinders -pyramids & cones	M
	Apply properties of chords and arcs in a circle	I M	Find volumes of: -prisms & cylinders -pyramids & cones	I M
	Use inscribed angles & polygons of circles	I M	Find surface areas & volumes of spheres	I M
	Apply other angle relationships in circles to find measures of angles inside & outside a circle	I M		
	Find segment lengths in circles	I M		
Attitudes	•		•	
Assessments	•		•	
Key Questions / Essential Ideas	<ul style="list-style-type: none"> <li>Using properties of segments that intersect circles</li> <li>Applying angle relationships in circles</li> <li>Using circles in the coordinate plane</li> </ul>		<ul style="list-style-type: none"> <li>Exploring solids and their properties</li> <li>Solving problems using surface area and volume</li> </ul>	

LEVELS: I: introduce M: master R: reinforce

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<b>Resources</b>	• GEOMETRY, Larson et al., McDougal Littell	• GEOMETRY, Larson et al., McDougal Littell	• GEOMETRY, Larson et al., McDougal Littell
<b>Technology</b>	•	•	•
<b>Library</b>	•	•	•