

East Side Union High School District
Standards-Based Geometry
August 2007

1. Please note that the textbook sections are not necessarily in sequential order. They may be taught in order, just make certain to cover all the sections listed before the end of the marking period.
2. Constructions, State Standard #16, are not listed as an objective. The timing of teaching constructions is teacher choice, as long as they are taught before the CST exams. There is a four question, open assessment that needs to be given before the Star Test. Consider giving this assessment during the first semester final, when time is not a factor.
3. All the State Standards have been covered within the first five marking periods. The sixth marking period has been intentionally left open to provide teachers with an opportunity to teach topics in the book not previously covered (chapter 9, etc.). This time could also be used to “revisit” concepts needing additional attention or reviewing Algebra. You may also wish to explore any passions or projects. Please note that there is no district created final for this marking period.

MARKING PERIOD 1 FOCUS: ESSENTIALS OF GEOMETRY, REASONING AND PROOF

Objectives	State Standards	Textbook Sections
MP 1.1 Understand and give examples of undefined terms and axioms (postulates).	G1.0 <i>Students demonstrate understanding by identifying and giving examples of undefined terms, axioms, theorems, and deductive and inductive reasoning.</i>	1.1 Identify points, lines and planes 1.2 Use line segments and congruence
MP 1.2 Understand and use the midpoint and distance formulas, using Pythagorean theorem to derive the distance formula.	G15.0 <i>Students use the Pythagorean Theorem to determine distance and find missing lengths of sides of right triangles.</i> G17.0 <i>Students prove theorems by using coordinate geometry, including the midpoint of a line segment, the distance formula, and various forms of equations of lines and circles.</i>	1.3 Use midpoint and distance formulas
MP 1.3 Understand and use basic angle concepts such as supplementary, complementary, vertical and angle bisectors.	G13.0 <i>Students prove relationships between angles in polygons by using properties of complementary, supplementary, vertical, and exterior angles.</i>	1.4 Measure and classify angles 1.5 Describe angle pair relationships
MP 1.4 Classify and identify polygons.	G12.0 <i>Students find and use measures of sides and of interior and exterior angles of triangles and polygons to classify figures and solve problems.</i>	1.6 Classify polygons
MP 1.5 Apply inductive and deductive reasoning as well as theorems.	G1.0 <i>Students demonstrate understanding by identifying and giving examples of undefined terms, axioms, theorems, and deductive and inductive reasoning.</i>	2.1 Use inductive reasoning 2.3* Apply deductive reasoning 2.4 Use postulates and diagrams
MP 1.6 Construct and judge validity of a logical argument, giving counterexamples to disprove a statement.	G3.0 <i>Students construct and judge the validity of logical arguments and give counterexamples to disprove statements.</i>	2.1 Use inductive reasoning 2.2 Apply conditional statements
MP 1.7 Write algebraic and geometric proofs.	G2.0 <i>Students write geometric proofs including proofs by contradiction.</i> G3.0 <i>Students construct and judge the validity of logical arguments and give counterexamples to disprove statements.</i>	2.5 Reasoning using properties from algebra 2.6 Prove statements about segments and angles 5.6 Inequalities in two triangles and indirect proofs (page 337 only)
MP 1.8 Prove basic theorems involving congruence.	G1.0 <i>Students demonstrate understanding by identifying and giving examples of undefined terms, axioms, theorems, and deductive and inductive reasoning.</i> G2.0 <i>Students write geometric proofs including proofs by contradiction.</i>	2.6 Prove statements about segments and angles 2.7 Prove angle pair relationships

* Textbook sections are not listed in order, but can be taught in consecutive order, if desired.

MARKING PERIOD 2 FOCUS: PARALLEL AND PERPENDICULAR LINES; CONGRUENT TRIANGLES

Objectives	State Standards	Textbook Sections
<p>MP 2.1 Prove and use theorems involving properties of parallel lines cut by a transversal.</p>	<p>G1.0 <i>Students demonstrate understanding by identifying and giving examples of undefined terms, axioms, theorems, and deductive and inductive reasoning.</i> G7.0 <i>Students prove and use theorems involving properties of parallel lines cut by a transversal, properties of quadrilaterals and properties of circles.</i></p>	<p>3.1 Identify pairs of lines and angles 3.2 Use parallel lines and transversals 3.3 Prove lines parallel</p>
<p>MP 2.2 Know slope formula and use it to show parallel and perpendicular lines.</p>	<p>G17.0 <i>Students prove theorems by using coordinate geometry, including the midpoint of a line segment, the distance formula, and various forms of equations of lines and circles.</i></p>	<p>3.4 Find and use slopes of lines 3.6 Prove theorems about perpendicular lines</p>
<p>MP 2.3 Write equations of lines using the coordinate plane.</p>	<p>G17.0 <i>Students prove theorems by using coordinate geometry, including the midpoint of a line segment, the distance formula, and various forms of equations of lines and circles.</i></p>	<p>3.5 Write and graph equations of lines</p>
<p>MP 2.4 Learn and apply triangle sum properties using both interior and exterior angles.</p>	<p>G12.0 <i>Students find and use measures of sides and of interior and exterior angles of triangles and polygons to classify figures and solve problems.</i></p>	<p>4.1 Apply Triangle sum properties</p>
<p>MP 2.5 Prove triangles congruent using SSS, SAS, AAS, ASA and HL.</p>	<p>G4.0 <i>Students prove basic theorems involving congruence and similarities.</i> G5.0 <i>Students prove that triangles are congruent or similar, & they are able to use the concept of corresponding parts of congruent triangles.</i></p>	<p>4.2 Apply congruence and triangles 4.6 Use congruent triangles</p>
<p>MP 2.6 Use properties of congruent figures and the concept of CPCTC to solve problems.</p>	<p>G4.0 <i>Students prove basic theorems involving congruence and similarities.</i> G5.0 <i>Students prove that triangles are congruent or similar, & they are able to use the concept of corresponding parts of congruent triangles.</i></p>	<p>4.3 Prove triangles congruent by SSS 4.4 Prove triangles congruent by SAS and HL 4.5 Prove triangles congruent by ASA & AAS</p>
<p>MP 2.7 Apply, use and prove theorems involving isosceles and equilateral triangles.</p>	<p>G5.0 <i>Students prove that triangles are congruent or similar, & they are able to use the concept of corresponding parts of congruent triangles.</i> G12.0 <i>Students find and use measures of sides and of interior and exterior angles of triangles and polygons to classify figures and solve problems.</i></p>	<p>4.7 Use isosceles and equilateral triangles</p>
<p>MP 2.8 Know the effect of rigid motion on figures in the coordinate plane, including rotations, translations and reflections.</p>	<p>G22.0 <i>Students know the effect of rigid motions on figures in the coordinate plane and space, including rotations, translations, and reflections.</i></p>	<p>4.8 Perform congruence transformations</p>

MARKING PERIOD 3 FOCUS: TRIANGLES, SIMILARITY, AND TRIGONOMETRY

Objectives	State Standards	Textbook Sections
<p>MP 3.1 Know and use the triangle inequality theorem.</p>	<p>G6.0 <i>Students know and are able to use the triangle inequality theorem.</i></p>	<p>5.5 Use inequalities in a triangle 5.6 Inequalities in two triangles and indirect proof</p>
<p>MP 3.2 Apply basic theorems of similarity (i.e. proportionality theorems)</p>	<p>G4.0 <i>Students prove basic theorems involving congruence and similarities.</i> G5.0 <i>Students prove that triangles are congruent or similar, and they are able to use the concept of corresponding parts of congruent triangles.</i></p>	<p>6.3 Use similar polygons 6.6 Use proportionality theorems</p>
<p>MP 3.3 Prove triangles similar using AA, SSS and SAS.</p>	<p>G4.0 <i>Students prove basic theorems involving congruence and similarities.</i> G5.0 <i>Students prove that triangles are congruent or similar, and they are able to use the concept of corresponding parts of congruent triangles.</i></p>	<p>6.4 Prove triangles similar by AA 6.5 Prove triangles similar by SSS and SAS</p>
<p>MP 3.4 Apply the Pythagorean theorem and its converse.</p>	<p>G14.0 <i>Students prove the Pythagorean Theorem</i> G15.0 <i>Students use the Pythagorean Theorem to determine distance and find missing lengths of sides of right triangles.</i></p>	<p>7.1 Apply the Pythagorean theorem 7.2 Use the converse of the Pythagorean theorem</p>
<p>MP 3.5 Know and use angle and side relationships in problems with special right triangles.</p>	<p>G20.0 <i>Students know and are able to use angle and side relationships in problems with special right triangles, such as 30°–60°–90° triangles and 45°–45°–90° triangles.</i></p>	<p>7.4 Special right triangles</p>
<p>MP 3.6 Know the definition of sine, cosine and tangent ratios.</p>	<p>G18.0 <i>Students know the definitions of the basic trigonometric functions defined by the angles of a right triangle. They also know and are able to use elementary relationships between them.</i></p>	<p>7.5 Apply the tangent ratio 7.6 Apply the sine and cosine ratios</p>
<p>MP 3.7 Use the sine, cosine and tangent ratios to find unknown sides.</p>	<p>G18.0 <i>Students know the definitions of the basic trigonometric functions defined by the angles of a right triangle. They also know and are able to use elementary relationships between them.</i> G19.0 <i>Students use trigonometric functions to solve for an unknown length of a side of a right triangle, given an angle and a length of a side.</i></p>	<p>7.5 Apply the tangent ratio 7.6 Apply the sine and cosine ratios</p>
<p>MP 3.8 Use trigonometric functions to solve for unknown angles.</p>	<p>G19.0 <i>Students use trigonometric functions to solve for an unknown length of a side of a right triangle, given an angle and a length of a side.</i></p>	<p>7.7 Solve right triangles</p>

MARKING PERIOD 4 FOCUS: QUADRILATERALS AND CIRCLES

Objectives	State Standards	Textbook Sections
<p>MP 4.1 Find and use measures of interior and exterior angles of polygons.</p>	<p>G12.0 <i>Students find and use measures of sides and of interior and exterior angles of triangles and polygons to classify figures and solve problems.</i></p>	<p>8.1 Find angle measures in polygons</p>
<p>MP 4.2 Identify and use properties of a parallelogram.</p>	<p>G7.0 <i>Students prove and use theorems involving the properties of parallel lines cut by a transversal, of quadrilaterals and of circles.</i> G12.0 <i>Students find and use measures of sides and of interior and exterior angles of triangles and polygons to classify figures and solve problems.</i></p>	<p>8.2 Use properties of parallelograms 8.3 Show that a quadrilateral is a parallelogram</p>
<p>MP 4.3 Identify and use properties of rhombi, rectangles and squares.</p>	<p>G7.0 <i>Students prove and use theorems involving the properties of parallel lines cut by a transversal, of quadrilaterals and of circles.</i> G12.0 <i>Students find and use measures of sides and of interior and exterior angles of triangles and polygons to classify figures and solve problems.</i> G17.0 <i>Students prove theorems using coordinate geometry, including midpoint of a line segment, distance formula, and various forms of equations of lines and circles.</i></p>	<p>8.4 Properties of rhombi, rectangles and squares 8.6 Identify special quadrilaterals</p>
<p>MP 4.4 Identify and use properties of trapezoids and kites</p>	<p>G7.0 <i>Students prove and use theorems involving the properties of parallel lines cut by a transversal, of quadrilaterals and of circles.</i> G12.0 <i>Students find and use measures of sides and of interior and exterior angles of triangles and polygons to classify figures and solve problems.</i></p>	<p>8.5 Use properties of trapezoids and kites 8.6 Identify special quadrilaterals</p>
<p>MP 4.5 Apply properties of circles to find the measures of arcs and chords.</p>	<p>G7.0 <i>Students prove and use theorems involving the properties of parallel lines cut by a transversal, of quadrilaterals and of circles.</i> G21.0 <i>Students prove and solve problems regarding relationships among chords, secants, tangents, inscribed angles and inscribed/ circumscribed polygons of circles.</i></p>	<p>10.1 Use properties of tangents 10.2 Find arc measures 10.3 Apply properties of chords</p>
<p>MP 4.6 Solve problems using angle relationships in circles.</p>	<p>G7.0 <i>Students prove and use theorems involving the properties of parallel lines cut by a transversal, of quadrilaterals and of circles.</i> G21.0 <i>Students prove & solve problems regarding relationships among chords, secants, tangents, inscribed angles and inscribed/ circumscribed polygons of circles.</i></p>	<p>10.1 Use properties of tangents 10.4 Use inscribed angles and polygons 10.5 Apply other angle relationships in circles</p>
<p>MP 4.7 Find measures of segments inside and outside of circles.</p>	<p>G7.0 <i>Students prove and use theorems involving the properties of parallel lines cut by a transversal, of quadrilaterals and of circles.</i> G21.0 <i>Students prove & solve problems regarding relationships among chords, secants, tangents, inscribed angles and inscribed/ circumscribed polygons of circles.</i></p>	<p>10.1 Use properties of tangents 10.6 Find segment lengths in circles</p>
<p>MP 4.8 Use equations of circles with center both at the origin and off the origin.</p>	<p>G17.0 <i>Students prove theorems using coordinate geometry, including midpoint of a line segment, distance formula, and various forms of equations of lines and circles.</i></p>	<p>10.7 Write and graph equations of circles</p>

MARKING PERIOD 5 FOCUS: PERIMETER, CIRCUMFERENCE, AREA AND VOLUME

Objectives	State Standards	Textbook Sections
<p>MP 5.1 Solve problems involving perimeter, circumference and arc length.</p>	<p>G8.0 <i>Students know, derive, and solve problems involving perimeter, circumference, area, volume, lateral area, and surface area of common geometric figures.</i></p>	<p>11.1 Areas of triangles and parallelograms 11.4 Circumference and arc length</p>
<p>MP 5.2 Solve problems involving areas of triangles and quadrilaterals.</p>	<p>G8.0 <i>Students know, derive, and solve problems involving perimeter, circumference, area, volume, lateral area, and surface area of common geometric figures.</i> G10.0 <i>Students compute areas of polygons, including rectangles, scalene triangles, equilateral triangles, rhombi, parallelograms, and trapezoids.</i></p>	<p>11.1 Areas of triangles and parallelograms 11.2 Areas of trapezoids, rhombi and kites</p>
<p>MP 5.3 Solve problems involving areas of circles and sectors.</p>	<p>G8.0 <i>Students know, derive, and solve problems involving perimeter, circumference, area, volume, lateral area, and surface area of common geometric figures.</i></p>	<p>11.5 Areas of circles and sectors</p>
<p>MP 5.4 Solve problems involving areas of regular polygons.</p>	<p>G8.0 <i>Students know, derive, and solve problems involving perimeter, circumference, area, volume, lateral area & surface area of geometric figures.</i> G10.0 <i>Students compute areas of polygons, including rectangles, scalene triangles, equilateral triangles, rhombi, parallelograms, and trapezoids</i> G21.0 <i>Students prove & solve problems regarding relationships chords, secants, tangents, inscribed angles & inscribed/circumscribed polygons of circles.</i></p>	<p>11.6 Areas of regular polygons</p>
<p>MP 5.5 Solve problems involving lateral area and surface area of prisms, pyramids and cylinders.</p>	<p>G8.0 <i>Students know, derive, and solve problems involving perimeter, circumference, area, volume, lateral area, and surface area of common geometric figures.</i> G9.0 <i>Students compute the volumes & surface areas of prisms, pyramids, cylinders, cones and spheres. Students commit to memory formulas for prisms, pyramids & cylinders</i></p>	<p>12.2 Surface area of prisms and cylinders 12.3 Surface area of pyramids and cones</p>
<p>MP 5.6 Solve problems involving volume of prisms, pyramids and cylinders.</p>	<p>G8.0 <i>Students know, derive, and solve problems involving perimeter, circumference, area, volume, lateral area, and surface area of common geometric figures.</i> G9.0 <i>Students compute the volumes & surface areas of prisms, pyramids, cylinders, cones, and spheres. Students commit to memory formulas for prisms, pyramids & cylinders</i></p>	<p>12.4 Volume of prisms and cylinders 12.5 Volume of pyramids and cones</p>
<p>MP 5.7 Solve problems involving surface area and volume of cones and spheres.</p>	<p>G8.0 <i>Students know, derive, and solve problems involving perimeter, circumference, area, volume, lateral area, and surface area of common geometric figures.</i> G9.0 <i>Students compute the volumes & surface areas of prisms, pyramids, cylinders, cones, and spheres. Students commit to memory formulas for prisms, pyramids & cylinders</i></p>	<p>12.3 Surface area of pyramids and cones 12.5 Volume of pyramids and cones 12.6 Surface and volume of spheres</p>
<p>MP 5.8 Determine how changes in dimensions affect the perimeter, area and volume of common space figures.</p>	<p>G11.0 <i>Students determine how changes in dimensions affect the perimeter, area and volume of common geometric figures and solids.</i></p>	<p>11.3 Perimeter and area of similar figures 12.7 Explore similar solids</p>

MARKING PERIOD 6 FOCUS: TEACHER CHOICE
THERE IS NO DISTRICT FINAL EXAM FOR THIS MARKING PERIOD

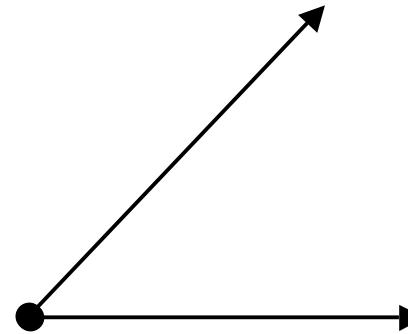
Possible Topics		Ideas...
1.	Sections of book that were skipped	1.7, 5.1, 5.2, 5.3, 5.4, 6.1, 6.2, 6.7, 7.3, all of chapter 9, 11.3, 11.7, 12.1
2.	Projects	Each chapter has a section in “Chapter Resource Book” containing ideas for projects related to that chapter. McDougal Littell <i>Data Analysis Sourcebook</i> .
3.	Geometry software explorations	Geometer’s Sketchpad, Cabri, graphing calculators, ... Refer to “Highlights” in table of contents for each chapter for lists of textbook pages relating to technology. McDougal Littell <i>Teaching Mathematics using Technology</i> .
4.	Animated Geometry activities at classzone.com	Refer to table of contents identifying animated activities in textbook.
5.	Algebra review	Skill review handbook pages 869-895. Beginning of Algebra 2 textbook. Ancillaries from Algebra 1 or Algebra 2. McDougal Littell <i>Functions Sourcebook</i> .
6.	Problem solving	Refer to “Highlights” in table of contents for each chapter for lists of textbook pages relating to problem solving.
7.	Reteaching sections in book that need additional attention.	
8.	Cross-curricular lessons	
9.	Teacher choice	

Name _____ Period _____

Date _____

Construction Final Exam for Geometry Standard 16.0

1. Construct an angle bisector for the given angle.



2. Construct the perpendicular bisector to the given line segment.



3. Construct the line parallel to the given line, but through the given point not on the line.



4. Construct an equilateral triangle using the given segment as a side length.

