

# Geometry Scope and Sequence

## Pacing Guide, MGH, Student Expectations

Unit Time	1 <sup>st</sup> Grading Period {8 weeks-40 days} (MGH sections)	TEKS {See Curriculum pages for TEKS Specificity}
12 days	<b>Tools for Geometry</b> <ul style="list-style-type: none"> <li>• Points, lines, planes (1-1) G.5B,G.2A</li> <li>• Measuring and constructing segments (1-2) G.5B, G.5C</li> <li>• Midpoint and distance (1-3) G.4A, <b><u>G.2B</u></b>, G.2A</li> <li>• Measuring and constructing angles(1-4) 7.7C, G.4A, G.5B,G.5C,<b><u>G.2B</u></b></li> <li>• Angle Relationships (1-5) G.5B &amp; Constructing Perpendiculars LAB 1-5</li> <li>• Two Dimensional Figures (1-6) <b><u>G.2B</u></b>, <b><u>G.10B</u></b></li> </ul>	G.5(B) construct congruent segments, congruent angles, a segment bisector, an angle bisector, perpendicular lines, the perpendicular bisector of a line segment, and a line parallel to a given line through a point not on a line using a compass and a straightedge G.5(C) use the constructions of congruent segments, congruent angles, angle bisectors, and perpendicular bisectors to make conjectures about geometric relationships <b><u>G.2(B) derive and use the distance, slope, and midpoint formulas to verify geometric relationships, including congruence of segments and parallelism or perpendicularity of pairs of lines</u></b> G.2(A) determine the coordinates of a point that is a given fractional distance less than one from one end of a line segment to the other in one- and two-dimensional coordinate systems, including finding the midpoint <b>G.10(B) determine and describe how changes in the linear dimensions of a shape affect its perimeter, area, surface area, or volume, including proportional and non-proportional dimensional change</b>
12 days	<b>Reasoning &amp; Proof</b> <ul style="list-style-type: none"> <li>• Inductive reasoning and making conjectures (2-1)</li> <li>• Logic (2-2) <b>G.4C</b></li> <li>• Conditional statements (2-3) G.4B</li> <li>• Deductive Reasoning (2-4)</li> <li>• Postulates and Paragraph Proofs (2-5) G.4A</li> <li>• Algebraic Proof (2-6)</li> <li>• Proving Segment Relationships (2-7) <b>G.6A</b> (2 days)</li> <li>• Proving Angle Relationships (2-8) <b>G.6A</b> (2 days)</li> </ul>	<b>G.4(C) verify that a conjecture is false using a counterexample</b> G.4(A) distinguish between undefined terms, definitions, postulates, conjectures, and theorems G.4(B) identify and determine the validity of the converse, inverse, and contrapositive of a conditional statement and recognize the connection between a biconditional statement and a true conditional statement with a true converse <b>G.6(A) verify theorems about angles formed by the intersection of lines and line segments, including vertical angles, and angles formed by parallel lines cut by a transversal and prove equidistance between the endpoints of a segment and points on its perpendicular bisector and apply these relationships to solve problems</b>
16 days	<b>Parallel and Perpendicular Lines</b> <ul style="list-style-type: none"> <li>• Parallel lines and transversals (3-1) <b><u>G.5A</u></b> *GSP (2 days)</li> <li>• Angles and parallel lines (3-2) <b><u>G.5A</u></b> (2 days)</li> <li>• Slopes of lines (3-3) <b><u>G.2B</u></b> (2 days)</li> <li>• Equations of lines (3-4) <b><u>G.2B</u></b>, <b><u>G.2C</u></b> (2 days)</li> <li>• Proving lines parallel (3-5) G.5B, <b>G.6A</b> (2 days)</li> <li>• Perpendiculars and distance (3-6) <b><u>G.2B</u></b> (2 days)</li> </ul>	<b><u>G.5(A) (see above)</u></b> <b><u>G.2(B) (see above)</u></b> <b><u>G.6(A) (see above)</u></b> G.5(B) (see above) <b>G.2(C) determine an equation of a line parallel or perpendicular to a given line that passes through a given point</b>

Source: The provisions of this §111.39 adopted to be effective September 10, 2012, 37 TexReg 7109  
 Textbook: Carter, J. (2012). Geometry. Glencoe/McGraw-Hill.

Updated: April 2019

**Bold: Readiness Standards Underlined: Power Standards (AISD)**

**\*\*\*Laying the Foundation material will be used to differentiate depth of instruction**



# Geometry Scope and Sequence

Pacing Guide, MGH, Student Expectations

Unit Time	2 <sup>nd</sup> Grading Period (8 weeks-42.5 days)	TEKS {See Curriculum pages for TEKS Specificity}
13 days	<b>Congruent Triangles</b> <ul style="list-style-type: none"> <li>• Classify triangles (4-1) <b><u>G.5A</u></b>, G.5D</li> <li>• Angles of triangles (4-2) <b><u>G.5A</u></b>, G.6D</li> <li>• Congruent triangles (4-3) <b><u>G.6B</u></b>, G.6D</li> <li>• Proving triangle congruence-SSS, SAS (4-4 &amp; LAB) <b><u>G.6B</u></b>,G.6D</li> <li>• Proving triangle congruence-ASA,AAS (4-5) <b><u>G.6B</u></b>,G.6D</li> <li>• Isosceles equilateral (4-6) G.6D</li> <li>• Triangle and coordinate proof 4-8 <b><u>G.2B</u></b></li> </ul>	<b><u>G.5(A) investigate patterns to make conjectures about geometric relationships, including angles formed by parallel lines cut by a transversal, criteria required for triangle congruence, special segments of triangles, diagonals of quadrilaterals, interior and exterior angles of polygons, and special segments and angles of circles choosing from a variety of tools</u></b> <b><u>G.6B prove two triangles are congruent by applying the Side-Angle-Side, Angle-Side-Angle, Side-Side-Side, Angle-Angle-Side, and Hypotenuse-Leg congruence conditions</u></b> G.5(D) verify the Triangle Inequality theorem using constructions and apply the theorem to solve problems G.6(D) verify theorems about the relationships in triangles, including proof of the Pythagorean Theorem, the sum of interior angles, base angles of isosceles triangles, mid-segments, and medians, and apply these relationships to solve problems
12 days	<b>Relationships in Triangles</b> <ul style="list-style-type: none"> <li>• Constructing Bisectors LAB (5-1) G.5C</li> <li>• Bisectors of Triangles (5-1) <b><u>G.6A</u></b>, G.6D (2 days)</li> <li>• Medians and altitudes of triangles (5-2) G.8B</li> <li>• Inequalities in one triangle (5-3) G.6D</li> <li>• Indirect proof (5-4) G.6D</li> <li>• Triangle inequality (5-5) G.5D, G.6D</li> <li>• Inequalities in two triangles (5-6) G.6D</li> </ul>	<b><u>G.6(A) verify theorems about angles formed by the intersection of lines and line segments, including vertical angles, and angles formed by parallel lines cut by a transversal and prove equidistance between the endpoints of a segment and points on its perpendicular bisector and apply these relationships to solve problems</u></b> G.6D (see above) G.5(C) use the constructions of congruent segments, congruent angles, angle bisectors, and perpendicular bisectors to make conjectures about geometric relationships G.8(B) identify and apply the relationships that exist when an altitude is drawn to the hypotenuse of a right triangle, including the geometric mean, to solve problems
10 days	<b>Proportions and Similarity</b> <ul style="list-style-type: none"> <li>• Ratio/proportion review (7-1) 6.4H, 6.5A</li> <li>• Similar polygons (7-2) <b><u>G.10B</u></b> (2 days)</li> <li>• Similar triangles (7-3) <b><u>G.7B</u></b>, G.8A (2 days)</li> <li>• Parallel Lines &amp; Proportional Parts (7-4) G.6D, G.8A</li> <li>• Parts of Similar Triangles (7-5) G.8A</li> <li>• Similarity Transformations (7-6) G.7A</li> </ul>	G.8(A) prove theorems about similar triangles, including the Triangle Proportionality theorem, and apply these theorems to solve problems <b><u>G.7(B) apply the Angle-Angle criterion to verify similar triangles and apply the proportionality of the corresponding sides to solve problems</u></b> G.7(A) apply the definition of similarity in terms of a dilation to identify similar figures and their proportional sides and the congruent corresponding angles <b><u>G.10(B) determine and describe how changes in the linear dimensions of a shape affect its perimeter, area, surface area, or volume, including proportional and non-proportional dimensional change</u></b>
7 days	<b>PSAT Semester Review and Exam</b>	

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# Geometry Scope and Sequence

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Unit Time	3 <sup>rd</sup> Grading Period ( 9 weeks – 42 days)	TEKS {See Curriculum pages for TEKS Specificity}
14 days	<b>Right Triangles and Trig</b> <ul style="list-style-type: none"> <li>Operations with radicals A.11A (2 days)</li> <li>Geometric Mean (8-1) G.6D</li> <li>The Pythagorean Theorem (8-2) G.6D</li> <li>Special right triangles (8-3) <b>G.9B</b> (2 days)</li> </ul> <hr/> <ul style="list-style-type: none"> <li>Trigonometry (8-4) <b>G.9A</b> (3 Days)</li> <li>Angles of elevation and depression (8-5) <b>G.9A</b> (2 Days)</li> </ul>	<b>G.9(B) apply the relationships in special right triangles <math>30^\circ</math> -<math>60^\circ</math> -<math>90^\circ</math> and <math>45^\circ</math> -<math>45^\circ</math> -<math>90^\circ</math> and the Pythagorean theorem, including Pythagorean triples, to solve problems</b> G.6(D) verify theorems about the relationships in triangles, including proof of the Pythagorean Theorem, the sum of interior angles, base angles of isosceles triangles, midsegments, and medians, and apply these relationships to solve problems <b>G.9(A) determine the lengths of sides and measures of angles in a right triangle by applying the trigonometric ratios sine, cosine, and tangent to solve problems</b>
9 days	<b>Transformations</b> <ul style="list-style-type: none"> <li>Reflections, Translations, Rotations (9-1 to 9-3) G.3C, G.3D (2 days)</li> <li>Compositions of Transformations (9-4) G.3A, <b>G.3B</b> (3 days)</li> <li>Symmetry (9-5) G.3D</li> <li>Dilations (9-6) <b>G.3B</b></li> <li>Congruence Transformations (4-7) G.6C</li> </ul>	G.3(A) describe and perform transformations of figures in a plane using coordinate notation <b>G.3(B) determine the image or pre-image of a given two-dimensional figure under a composition of rigid transformations, a composition of non-rigid transformations, and a composition of both, including dilations where the center can be any point in the plane</b> G.3(C) identify the sequence of transformations that will carry a given pre-image onto an image on and off the coordinate plane G.3(D) identify and distinguish between reflectional and rotational symmetry in a plane figure G.6(C) apply the definition of congruence, in terms of rigid transformations, to identify congruent figures and their corresponding sides and angles
15 days	<b>Circles</b> <ul style="list-style-type: none"> <li>Circles &amp; Circumference (10-1)</li> <li>Measuring Angles and Arcs (10-2) G.12B, G.12D</li> <li>Arcs &amp; Chords (10-3) G.12A</li> <li>Inscribed angles (10-4) G.12A</li> <li>Tangents (10-5) G.12A</li> <li>Secants, tangents, and angles (10-6) <b>G.5A</b>, G.12A</li> <li>Special Segments (10-7) G.12A</li> <li>Equations of Circles (10-8) G.12E (Pre AP including completing the square from General to Standard Form) (2 days)</li> <li>Area of Sectors (11.3) <b>G.11B</b>, G.12C (3 days)</li> </ul>	G.12(B) apply the proportional relationship between the measure of an arc length of a circle and the circumference of the circle to solve problems G.12(D) describe radian measure of an angle as the ratio of the length of an arc intercepted by a central angle and the radius of the circle G.12(A) apply theorems about circles, including relationships among angles, radii, chords, tangents, and secants, to solve non-contextual problems G.12(E) show that the equation of a circle with center at the origin and radius $r$ is $x^2 + y^2 = r^2$ and determine the equation for the graph of a circle with radius $r$ and center $(h, k)$ , $(x - h)^2 + (y - k)^2 = r^2$ <b>G.11(B) determine the area of composite two-dimensional figures comprised of a combination of triangles, parallelograms, trapezoids, kites, regular polygons, or sectors of circles to solve problems using appropriate units of measure</b> G.12(C) apply the proportional relationship between the measure of the area of a sector of a circle and the area of the circle to solve problems
3 days	<b>Quadrilaterals</b> <ul style="list-style-type: none"> <li>Angles of Polygons (6-1) <b>G.5A</b></li> <li>Parallelograms (6-2) G.6E</li> <li>Tests for Parallelograms (6-3)G.6E</li> </ul>	<b>G.5(A) investigate patterns to make conjectures about geometric relationships, including angles formed by parallel lines cut by a transversal, criteria required for triangle congruence, special segments of triangles, diagonals of quadrilaterals, interior and exterior angles of polygons, and special segments and angles of circles choosing from a variety of tools</b>
2 days	<b>CBA 3<sup>rd</sup> grading period</b> <b>ELA SIM</b>	

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# Geometry Scope and Sequence

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Unit Time	4 <sup>th</sup> Grading Period ( 10 weeks – 48 days) 37 days before Alg. 1 EOC testing	TEKS {See Curriculum pages for TEKS Specificity}
5 days	<b>Quadrilaterals</b> <ul style="list-style-type: none"> <li>Rectangles (6-4) <b><u>G.5A</u></b>, G.6E</li> <li>Rhombi and Squares (6-5) <b><u>G.5A</u></b>, G.6E</li> <li>Trapezoids and Kites (6-6) <b><u>G.2B</u></b></li> </ul>	<b><u>G.2(B) derive and use the distance, slope, and midpoint formulas to verify geometric relationships, including congruence of segments and parallelism or perpendicularity of pairs of lines</u></b> G.6(E) prove a quadrilateral is a parallelogram, rectangle, square, or rhombus using opposite sides, opposite angles, or diagonals and apply these relationships to solve problems
10 days	<b>Area of Polygons and Circles</b> <ul style="list-style-type: none"> <li>Area of Parallelograms and Triangles (11-1) <b><u>G.10B</u></b></li> <li>Area of Trapezoids, Rhombus and Kites (11-2) <b><u>G.10B</u></b></li> <li>Area of Regular Polygons and Composite figures (11-4) <b><u>G.11B</u></b></li> <li>Perimeter and area in the coordinate plane LAB 11-4 G.11A</li> <li>Area of Similar Figures (11-5) <b><u>G.10B</u></b></li> </ul>	<b><u>G.10(B) determine and describe how changes in the linear dimensions of a shape affect its perimeter, area, surface area, or volume, including proportional and non-proportional dimensional change</u></b> <b><u>G.11(B) determine the area of composite two-dimensional figures comprised of a combination of triangles, parallelograms, trapezoids, kites, regular polygons, or sectors of circles to solve problems using appropriate units of measure</u></b> G.11(A) apply the formula for the area of regular polygons to solve problems using appropriate units of measure
16 days	<b>Spatial Reasoning</b> <ul style="list-style-type: none"> <li>Three dimensional Figures (1-7) G.10A</li> <li>Representations of 3D figures (12-1) G.10A</li> <li>Surface area – prisms and cylinders (12-2) <b><u>G.11C</u></b>, G.11A (2 days)</li> <li>Surface area – pyramids and cones (12-3) <b><u>G.11C</u></b>, G.11A (2 days)</li> <li>Volumes - prisms and cylinders (12-4) <b><u>G.11D</u></b></li> <li>Changing Dimensions LAB 12-4 <b><u>G.10B</u></b></li> <li>Volumes – pyramids and cones (12-5) <b><u>G.10B</u></b>, <b><u>G.11D</u></b> (2 days)</li> <li>Surface area and volumes of spheres (12-6) G.4D</li> <li>Spherical geometry (12-7) G.4D</li> </ul>	G.10(A) identify the shapes of two-dimensional cross-sections of prisms, pyramids, cylinders, cones, and spheres and identify three-dimensional objects generated by rotations of two-dimensional shapes <b><u>G.11(C) apply the formulas for the total and lateral surface area of three dimensional figures, including prisms, pyramids, cones, cylinders, spheres, and composite figures, to solve problems using appropriate units of measure</u></b> <b><u>G.11(D) apply the formulas for the volume of three-dimensional figures, including prisms, pyramids, cones, cylinders, spheres, and composite figures, to solve problems using appropriate units of measure</u></b> G.4(D) compare geometric relationships between Euclidean and spherical geometries, including parallel lines and the sum of angles in a triangle
10 days	<b>Probability</b> <ul style="list-style-type: none"> <li>Representing sample spaces (13-1)</li> <li>Probability- permutations and combinations (13-2) G.13A</li> <li>Geometric probability (13-3) G.13B</li> <li>Simulations (13-4)</li> <li>Probabilities of ind/dep events (13-5) <b><u>G.13C</u></b>, G.13D (2 days)</li> <li>Mutually exclusive events (13-6) G.13E</li> </ul>	<b><u>G.13(C) identify whether two events are independent and compute the probability of the two events occurring together with or without replacement</u></b> G.13(A) develop strategies to use permutations and combinations to solve contextual problems G.13(B) determine probabilities based on area to solve contextual problems G.13(D) apply conditional probability in contextual problems G.13(E) apply independence in contextual problems
7 days	<b>English II STAAR Semester Review and Exam</b>	<b>End of Year Topics – Review for Next Course (AR or A2)</b> <ul style="list-style-type: none"> <li>Multiple Representation: T/G/E (Alg 1 Ch.1-6) *emphasis on graphing by hand given a function – make table of values then graph*</li> <li>Factoring trinomials (Alg 1 Ch.8-6 &amp; Ch.8-7) **Using “split the middle method” described in the chapter &amp; curr video</li> </ul>

