

Geometry & Measurement	Grade Level/Course: Regular Geometry			District		
Mark Mehr				Date		
Content	Objectives Skills Processes	Vocabulary	Assessment	Resources Chapters / Sections	Mn Standard & Benchmarks	Estimate # of days on Unit
Basics of Geometry	Understand how language, logic, and problem solving are used in mathematics and the sciences.	language-logic-problem solving, definition, postulate(axiom), theorem, undefined terms (point, line, plane), set, collinear points, coplanar points, segment, ray, dense lines, discrete lines, congruence, polygons (triangle, quadrilateral, pentagon, hexagon,heptagon,octagon, nonagon, decagon, n-gon), <b>convex and non-convex polygons (concave),equilateral</b> , equilateral, equiangular, proof, conditional statements, instances, counterexamples, biconditionals (if-and-only-if), justifications		Ch.1.1,1.2,1.6, Ch. 2.1-2.5 and supplements	9.3.1.3 9.3.2.1 9.3.2.2 9.3.2.3 9.3.4.4	about 12 days
Basic Measurement	Understanding of geometric space with simple linear measurement and simple angular measurement.	coordinate points (one and two dimensional),distance, <b>midpoint</b> , segment bisector, endpoints, one dimensional units (mm,in.,cm,ft.,m,yd,mi.,km, etc...), <b>angle</b> , vertex, sides, <b>angle interior, angle exterior</b> , angle measure (degrees-minutes-seconds, decimal degrees), types of angles (zero, acute, right, obtuse, straight), rotation measure, angle bisector, pairs of angles (adjacent angles, verticla angles, linear pairs, complementary, supplementary, reflex), square, rectangle, circle, perimeter (polygons), Pi, circumference, areas (rectangles and circles)		ch.1.3-1.5 and supplements	9.3.1.3 9.3.1.5 9.3.3.2 9.3.4.4	about 15 days

Logic and the Proof (2 column)	Understanding of the use and structure of logic to prove or disprove facts using geometry and algebra I concepts.	conjecture, inductive reasoning, deductive reasoning, 2-column proof structure, hypothesis, conclusion, equivalent conclusions, general conclusions, <b>converse, inverses, contrapositive, negation, biconditional statements</b>		ch.2.5-2.7,3.3 and supplements	9.3.2.1 9.3.2.2 9.3.2.3 9.3.2.4 9.3.2.5 9.3.3.1	about 17 days
Intersecting and Parallel Lines	Review of equations of lines from algebra I and extends into all intersecting line relationships including parallels and perpendiculars.	horizontal lines, <b>vertical lines</b> , oblique lines, slope, y-intercept, skew lines, parallel, intersection, <b>transversals, corresponding angles, alternate interior angles, alternate exterior angles</b> , consecutive interior angles, union, perpendicular, distance from a point to a line		ch.3.1,3.2,3.4-3.6	9.3.1.5 9.3.2.4 9.3.3.1 9.3.3.2 9.3.4.4	about 10 days
Basic Construction	Understand how to use tools and basic rules and algorithms to minimize measurement error.	construction, algorithm, point rule, straightedge rule, compass rule, constructions: <b>perpendicular bisector of a segment</b> , perpendicular to a line through a point ON the line, perpendicular to a line through a point OFF the line, <b>angle bisector</b> , copy an angle measure, parallel to a line through a point OFF the line		ALL supplements	9.3.2.5 9.3.3.2 9.3.3.8	about 8 days
Triangles: Basic Facts and Congruence	Using triangles as a way to relate distances and angles to each other and what given measurements lead to congruent triangles.	triangle angle sum theorem, triangle inequality, triangle opposite sides and angles relationship, measurement (exact, approximate, estimate), types of triangles (acute, right, obtuse, <b>scalene, isosceles, equilateral</b> ), triangle height/altitude, triangle bases, interior angles, exterior angles, lines of symmetry, triangle congruence (SAS, ASA, SSS, AAS, SsA, HL, sSA), Not congruent triangles (similar and not similar)		ch.4.1-4.5 and supplements	9.3.3.2 9.3.3.3 9.3.3.4 9.3.3.6 9.3.3.7 9.3.4.1	about 12 days

Solving Triangles	Extending the use of congruent relationships of triangles to solve for unknown values when given specific angle and side length measurements.	pythagoreans theorem, squareroots, rational numbers, irrational numbers, special triangles ( 45-45-90, 30-60-90, Pyth. Triples-> 3/4/5 , 5/12/13), <b>trigonometric ratios ( sine, cosine, tangent)</b> , law of cosines, law of sines		ch.4.4,4.6,7.1-7.7 and supplements	9.3.1.3 9.3.1.5 9.3.3.2 9.3.3.3 9.3.3.4 9.3.3.5 9.3.3.6 9.3.3.7 9.3.3.8 9.3.4.1 9.3.4.2 9.3.4.3	about 18 days
Transformations: Congruent and Not	Understanding of the basic types of transformations with emphasis on the congruence transformations.	transformations, <b>preimage, image</b> , mappings, <b>isometries</b> , reflected points, reflection, reflection lines, reflected figures, figure orientation, <b>composites, decompose</b> , composites of reflections, translations, magnitude, rotations, center of rotation, glide-reflections, change factors, proportions		ch.9.3-9.7 and supplements	9.3.4.6	about 12 days
Similarity Transformations	Extention of non-congruent transformations with an emphasis on the similarity of figures.	<b>scale changes</b> , dilation, expansion,enlargement, contraction, reduction, similar triangles, ratios, scale AA similarity, SAS similarity, SSS similarity, similar figures, geometric mean, scale drawings		ch.6.1-6.7 and supplements	9.3.1.4 9.3.1.5 9.3.3.6 9.3.3.8 9.3.4.1	about 10 days
Quadrilaterals and other Polygons	Understand properties of the different types of quadrilaterals relating their distances and angle measures as well as parallelism.	Quadrilaterals ( kites, rhombus, trapezoid, isosceles trapezoid, parallogram, rectangle, square), legs, bases, height/altitude, quadrilateral heirachy, quadrilateral symmetry, quadrilateral angle sum, polygon interior angle sum theorem, polygon exterior angle sum		ch. 8.1-8.6 and supplements	9.3.3.1 9.3.3.3 9.3.3.4 9.3.3.6 9.3.3.7 9.3.4.1	about 15 days

Circles, Perimeter and Area of Two Dimensional Figures	One and two dimensional measurements related to circles and polygons.	circle, concentric circles, radius, diameter, chord, tangent line, secant line, central angles, perimeter formulas, Pi, circumference, unit circle, square units both customary and metric, area formulas (all triangles, all quadrilaterals, other combined figures), negative space, super-position, arc length, arc measure, <b>minor arcs, major arcs</b> , semicircles, sectors of a circle, <b>circumscribed</b> , minor sectors, major sectors		ch.11.1-11.6,10.2	9.3.1.3 9.3.1.5 9.3.3.8 9.3.4.1 9.3.4.2 9.3.4.3	about 17 days
3-D Figures and their Drawings	Understand the 5 basic geometric three dimensional figures and the different ways to represent those 3-D figures and their important 1-D measurements using 2-D drawings.	edge, surface, face, base, base edge, lateral surface, lateral face, slant height, altitude/height, hidden-lines, oblique figure, right figure, solid figure, surface figure, prisms, cylinder, cone, pyramid, <b>sphere</b> , nets, elevation views, 3-D views, cross-section, cross-sectional views, figure and drawing orientation, scale keys, seams verse folds		ch.12.1 and Mostly supplements	9.3.1.2 9.3.3.4 9.3.3.6 9.3.4.1 9.3.4.2 9.3.4.3 9.3.4.7	about 8 days
Measurement of 3-D Figures	Understand the use of mathematical formulas and measurement conversion fact to solve for the 2 and 3 dimensional measurements of the 5 basic 3-D figures.	hidden right triangles, surface area and formulas, volume: formulas and cubic units both customary and metric, capacity and its units ( gallon, quart, pint, fluid ounce, liter and all metric prefixes of the liter, mass, grams and all metric prefixes of the gram, weight, pounds, ounces, tons)		ch.12.2-12.6 and supplements	9.3.1.3 9.3.1.1 9.3.1.2 9.3.1.5 9.3.3.4 9.3.3.6 9.3.4.1 9.3.4.2 9.3.4.3	about 18 days
IF TIME ALLOWS: Conic Sections and their Equations	Understand the coordinate geometry and equations the the simple conic section figures.	conic and the conic sections, point, intersecting lines, circle, ellipse, parabola, hyperbola, locus of points, vertex, focus, focii, directix, major axis, minor axis, sum of the focal radii, difference of the focal radii, asymptote		ch.10.1,10.3-7 and Mostly supplements	9.3.3.8 9.3.4.5	?

If TIME ALLOWS: Circles Special Facts	Add to our circle facts the lesser know angle and distance relationships relating to circle.	<b>inscribed angles, inscribed arcs</b>		ch. 10.3,10.5,10.6	9.3.3.8	?
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