

	Essential Questions	Content	Skills	Assessments	Standards/PIs	Resources/Notes
Unit 1	<p>How and why were geometric constructions developed?</p> <p>Why do we use a straightedge as opposed to a ruler? What is the difference?</p> <p>How are points determined that satisfy different conditions?</p>	<p>Geometric Constructions</p> <p>Construct a line segment congruent to a given line segment</p> <p>Construct an angle congruent to a given angle</p> <p>Construct the perpendicular bisector of a given line segment and the midpoint of a given line segment</p> <p>Bisect a given angle</p> <p>Construct a line perpendicular to a given line through a given point on the line</p> <p>Construct a line perpendicular to a given line through a point not on the given line</p> <p>Construct a line parallel to a given line at a given point</p> <p>Locus</p> <p>The 5 Fundamental Loci:</p> <p>Equidistant from two points</p> <p>Equidistant from two intersecting lines</p> <p>Equidistant from two parallel lines</p> <p>At a fixed distance from a line</p> <p>At a fixed distance from a point</p> <p>Compound Locus</p> <p>Locus in Coordinate Geometry</p> <p>Vocabulary</p> <p>review of: parallel, perpendicular, midpoint, bisector, line segment, equilateral</p> <p>construction, locus, equidistant, fixed distance,</p>	<p>Constructs congruent line segments</p> <p>Constructs angle bisectors</p> <p>Constructs perpendicular lines</p> <p>Constructs parallel lines</p> <p>Explains the meaning of locus</p> <p>Finds points that satisfy specific conditions using the loci theorems</p>		<p>MST3-G.G.17</p> <p>MST3-G.G.18</p> <p>MST3-G.G.19</p> <p>MST3-G.G.20</p> <p>MST3-G.G.22</p> <p>MST3-G.G.23</p>	

		<i>compound locus,</i>			
Unit 2	<p>How do we prove a triangle is an isosceles triangle? How do we prove a triangle is an equilateral triangle?</p> <p>How do we prove a triangle is a right triangle?</p> <p>How do we prove a quadrilateral is a parallelogram, a rhombus, a rectangle, or a square?</p> <p>How do we prove that a quadrilateral is a trapezoid or an isosceles trapezoid?</p>	<p>COORDINATE GEOMETRY PROOFS</p> <p>7-9 DAYS</p> <p>Properties of an isosceles triangle applied to coordinate geometry</p> <p>Properties of an equilateral triangle applied to coordinate geometry</p> <p>Properties of a right triangle applied to coordinate geometry</p> <p>Properties of a parallelogram, rhombus, rectangle, and a square applied to coordinate geometry</p> <p>Properties of a trapezoid and an isosceles trapezoid applied to coordinate geometry</p> <p><u>Vocabulary</u></p> <p><i>Review:</i></p> <p><i>isosceles, equilateral, and right triangles</i></p> <p><i>quadrilateral, parallelogram, rectangle, square, trapezoid, isosceles trapezoid</i></p>	<p>Prove a triangle is isosceles or equilateral using the midpoint, slope, and or distance formulas</p> <p>Prove a triangle is a right triangle using the midpoint, slope, and or distance formulas</p> <p>Prove a quadrilateral is a parallelogram, rhombus, rectangle, or square using the midpoint, slope, and or distance formulas</p> <p>Prove a quadrilateral is a trapezoid or an isosceles trapezoid using the midpoint, slope, and or distance formulas</p>		<p>MST3-G.G.41</p> <p>MST3-G.G.69</p>
Unit 3	<p>How are geometric shapes reflected over a line?</p> <p>How are geometric shapes reflected through a point?</p> <p>How are geometric shapes translated?</p> <p>How are geometric shapes rotated about a point?</p> <p>What is a glide reflection and how does it differ from a line reflection?</p> <p>How are geometric shapes dilated? How do geometric shapes change after a dilation?</p>	<p>TRANSFORMATIONS AND ISOMETRIES</p> <p>7-9 DAYS</p> <p>Line reflections</p> <p>Line symmetry</p> <p>Line reflections in coordinate geometry:</p> <p>over the x-axis</p> <p>over the y-axis</p> <p>over $x=y$</p>	<p>Draw the reflection of a geometric shape over a line</p> <p>Draw the reflection of a geometric shape through a point</p> <p>Draw the translation of a geometric shape</p> <p>Draw the resulting geometric shape after a rotation about a point</p> <p>Draw a geometric shape after a glide reflection</p> <p>Draw a geometric shape after a dilation</p>		<p>MST3-G.G.54</p> <p>MST3-G.G.55</p> <p>MST3-G.G.56</p> <p>MST3-G.G.57</p> <p>MST3-G.G.58</p>

	<p>How are multiple translations performed?</p>	<p>Point reflections Point symmetry Point reflections in coordinate geometry</p> <p>Translations Translations in coordinate geometry Translational symmetry</p> <p>Rotations Rotations in coordinate geometry Rotational symmetry</p> <p>Glide reflections Glide reflections in coordinate geometry</p> <p>Isometries</p> <p>Dilations Dilations in coordinate geometry Constant of dilations</p> <p>Composition of transformations</p> <p><u>Vocabulary</u> <i>transformation</i> <i>translation</i> <i>reflection in a line</i> <i>line symmetry</i> <i>point reflection</i> <i>rotation, quarter turn, glide reflection, isometry, dilation, function, direct isometry, opposite isometry</i></p>	<p>Apply the constant of dilation to perimeters, areas and volumes</p> <p>Draw the resulting shape after two or three transformations</p>			
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	Essential Questions	Content	Skills	Assessments	Standards/PIs	Resources/Notes
Unit 4	<p>How do points, lines, and planes relate to three-dimensional shapes?</p> <p>Why is volume measured in cubic units?</p> <p>How are three-dimensional shapes created from two-dimensional shapes?</p>	<p>THREE DIMENSIONAL GEOMETRY</p> <p>10 - 12 DAYS</p> <p>Points, Lines, and Planes</p> <p>Perpendicular Lines and Planes</p> <p>Parallel Lines and Planes</p> <p>Volume of a Prism</p> <p>Surface area of a Prism</p> <p>Pyramids</p> <p>Cylinders</p> <p>Cones</p> <p>Spheres</p> <p><u>Vocabulary</u></p> <p><i>Skew lines</i></p> <p><i>dihedral angle</i></p> <p><i>polyhedron</i></p> <p><i>edges</i></p> <p><i>vertices</i></p> <p><i>prism</i></p> <p><i>lateral sides</i></p> <p><i>lateral edges</i></p> <p><i>parallelepiped</i></p> <p><i>slant height</i></p> <p><i>great circle</i></p>	<p>Memorizes all theorems and definitions regarding points, lines, and planes</p> <p>Defines dihedral angle</p> <p>Determines if a line is perpendicular to a plane or if a plane is perpendicular to a line</p> <p>Determines if two planes are parallel</p> <p>Calculates the surface area and volume of prisms</p> <p>Defines properties of regular pyramids, cylinders, cones, and spheres</p>		<p>MST3-G.G.1</p> <p>MST3-G.G.2</p> <p>MST3-G.G.3</p> <p>MST3-G.G.4</p> <p>MST3-G.G.5</p> <p>MST3-G.G.6</p> <p>MST3-G.G.7</p> <p>MST3-G.G.8</p> <p>MST3-G.G.9</p> <p>MST3-G.G.10</p> <p>MST3-G.G.11</p> <p>MST3-G.G.12</p> <p>MST3-G.G.13</p> <p>MST3-G.G.14</p> <p>MST3-G.G.15</p> <p>MST3-G.G.16</p>	
Unit 5	<p>How do we prove two triangles congruent?</p> <p>How do we prove two triangles similar?</p> <p>How do we prove parallel properties of similar triangles?</p> <p>How can we prove parts of congruent triangles to be congruent?</p> <p>How can we use the various methods of proof?</p>	<p>GEOMETRIC PROOFS</p> <p>25 - 30 DAYS</p> <p>use SAS, AAS, ASA, HYP-Leg theorems to prove two triangles are congruent</p> <p>Use AAA theorem to prove triangles are similar</p> <p>Prove that parts of congruent triangles are congruent</p>	<p>Memorize all definitions and theorems in this section</p> <p>Prove that two triangles are congruent using ASA, AAS, SAS, Right angle-hyp-leg theorems</p> <p>Prove corresponding parts of congruent triangles are congruent</p> <p>Prove that two triangle are similar</p>		<p>MST3-G.RP.2</p> <p>MST3-G.RP.3</p> <p>MST3-G.RP.5</p> <p>MST3-G.RP.7</p> <p>MST3-G.G.27</p> <p>MST3-G.G.29</p> <p>MST3-G.G.28</p>	

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Key to Standards used in this Map

MST3-G.RP.2 [1 occurrence] - MST Standard 3 - Reasoning and Proof Strand - Students will recognize reasoning and proof as fundamental aspects of mathematics. - Performance Indicator G.RP.2 - recognize and verify, where appropriate, geometric relationships of perpendicularity, parallelism, congruence, and similarity, using algebraic strategies [Geometry]

MST3-G.RP.3 [1 occurrence] - MST Standard 3 - Reasoning and Proof Strand - Students will make and investigate mathematical conjectures. - Performance Indicator G.RP.3 - investigate and evaluate conjectures in mathematical terms, using mathematical strategies to reach a conclusion [Geometry]

MST3-G.RP.5 [1 occurrence] - MST Standard 3 - Reasoning and Proof Strand - Students will develop and evaluate mathematical arguments and proofs. - Performance Indicator G.RP.5 - present correct mathematical arguments in a variety of forms [Geometry]

MST3-G.RP.7 [1 occurrence] - MST Standard 3 - Reasoning and Proof Strand - Students will select and use various types of reasoning and methods of proof. - Performance Indicator G.RP.7 - construct a proof using a variety of methods (e.g., deductive, analytic, transformational) [Geometry]

MST3-G.G.1 [1 occurrence] - MST Standard 3 - Geometry Strand - Students will use visualization and spatial reasoning to analyze characteristics and properties of geometric shapes. [Geometric Relationships] - Performance Indicator G.G.1 - know and apply that if a line is perpendicular to each of two intersecting lines at their point of intersection, then the line is perpendicular to the plane determined by them [Geometry]

MST3-G.G.2 [1 occurrence] - MST Standard 3 - Geometry Strand - Students will use visualization and spatial reasoning to analyze characteristics and properties of geometric shapes. [Geometric Relationships] - Performance Indicator G.G.2 - know and apply that through a given point there passes one and only one plane perpendicular to a given line [Geometry]

MST3-G.G.3 [1 occurrence] - MST Standard 3 - Geometry Strand - Students will use visualization and spatial reasoning to analyze characteristics and properties of geometric shapes. [Geometric Relationships] - Performance Indicator G.G.3 - know and apply that through a given point there passes one and only one line perpendicular to a given plane [Geometry]

MST3-G.G.4 [1 occurrence] - MST Standard 3 - Geometry Strand - Students will use visualization and spatial reasoning to analyze characteristics and properties of geometric shapes. [Geometric Relationships] - Performance Indicator G.G.4 - know and apply that two lines perpendicular to the same plane are coplanar [Geometry]

MST3-G.G.5 [1 occurrence] - MST Standard 3 - Geometry Strand - Students will use visualization and spatial reasoning to analyze characteristics and properties of geometric shapes. [Geometric Relationships] - Performance Indicator G.G.5 - know and apply that two planes are perpendicular to each other if and only if one plane contains a line perpendicular to the second plane [Geometry]

MST3-G.G.6 [1 occurrence] - MST Standard 3 - Geometry Strand - Students will use visualization and spatial reasoning to analyze characteristics and properties of geometric shapes. [Geometric Relationships] - Performance Indicator G.G.6 - know and apply that if a line is perpendicular to a plane, then any line perpendicular to the given line at its point of intersection with the given plane is in the given plane [Geometry]

MST3-G.G.7 [1 occurrence] - MST Standard 3 - Geometry Strand - Students will use visualization and spatial reasoning to analyze characteristics and properties of geometric shapes. [Geometric Relationships] - Performance Indicator G.G.7 - know and apply that if a line is perpendicular to a plane, then every plane containing the line is perpendicular to the given plane [Geometry]

MST3-G.G.8 [1 occurrence] - MST Standard 3 - Geometry Strand - Students will use visualization and spatial reasoning to analyze characteristics and properties of geometric shapes. [Geometric Relationships] - Performance Indicator G.G.8 - know and apply that if a plane intersects two parallel planes, then the intersection is two parallel lines [Geometry]

MST3-G.G.9 [1 occurrence] - MST Standard 3 - Geometry Strand - Students will use visualization and spatial reasoning to analyze characteristics and properties of geometric shapes. [Geometric Relationships] - Performance Indicator G.G.9 - know and apply that if two planes are perpendicular to the same line, they are parallel [Geometry]

MST3-G.G.10 [1 occurrence] - MST Standard 3 - Geometry Strand - Students will use visualization and spatial reasoning to analyze characteristics and properties of geometric shapes. [Geometric Relationships] - Performance Indicator G.G.10 - know and apply that the lateral edges of a prism are congruent and parallel [Geometry]

MST3-G.G.11 [1 occurrence] - MST Standard 3 - Geometry Strand - Students will use visualization and spatial reasoning to analyze characteristics and properties of geometric shapes. [Geometric Relationships] - Performance Indicator G.G.11 - know and apply that two prisms have equal volumes if their bases have equal areas and their altitudes are equal [Geometry]

MST3-G.G.12 [1 occurrence] - MST Standard 3 - Geometry Strand - Students will use visualization and spatial reasoning to analyze characteristics and properties of geometric shapes. [Geometric Relationships] - Performance Indicator G.G.12 - know and apply that the volume of a prism is the product of the area of the base and the altitude [Geometry]

MST3-G.G.13 [1 occurrence] - MST Standard 3 - Geometry Strand - Students will use visualization and spatial reasoning to analyze characteristics and properties of geometric shapes. [Geometric Relationships] - Performance Indicator G.G.13 - apply the properties of a regular pyramid [Geometry]

MST3-G.G.14 [1 occurrence] - MST Standard 3 - Geometry Strand - Students will use visualization and spatial reasoning to analyze characteristics and properties of geometric shapes. [Geometric Relationships] - Performance Indicator G.G.14 - apply the properties of a cylinder [Geometry]

MST3-G.G.15 [1 occurrence] - MST Standard 3 - Geometry Strand - Students will use visualization and spatial reasoning to analyze characteristics and properties of geometric shapes. [Geometric Relationships] - Performance Indicator G.G.15 - apply the properties of a right circular cone [Geometry]

MST3-G.G.16 [1 occurrence] - MST Standard 3 - Geometry Strand - Students will use visualization and spatial reasoning to analyze characteristics and properties of geometric shapes. [Geometric Relationships] - Performance Indicator G.G.16 - apply the properties of a sphere [Geometry]

MST3-G.G.17 [1 occurrence] - MST Standard 3 - Geometry Strand - Students will use visualization and spatial reasoning to analyze characteristics and properties of geometric shapes. [Constructions] - Performance Indicator G.G.17 - construct a bisector of a given angle, using a straightedge and compass, and justify the construction [Geometry]

MST3-G.G.18 [1 occurrence] - MST Standard 3 - Geometry Strand - Students will use visualization and spatial reasoning to analyze characteristics and properties of geometric shapes. [Constructions] - Performance Indicator G.G.18 - construct the perpendicular bisector of a given segment, using a straightedge and compass, and justify the construction [Geometry]

MST3-G.G.19 [1 occurrence] - MST Standard 3 - Geometry Strand - Students will use visualization and spatial reasoning to analyze characteristics and properties of geometric shapes. [Constructions] - Performance Indicator G.G.19 - construct lines parallel (or perpendicular) to a given line through a given point, using a straightedge and compass, and justify the construction [Geometry]

MST3-G.G.20 [1 occurrence] - MST Standard 3 - Geometry Strand - Students will use visualization and spatial reasoning to analyze characteristics and properties of geometric shapes. [Constructions] - Performance Indicator G.G.20 - construct an equilateral triangle, using a straightedge and compass, and justify the construction [Geometry]

MST3-G.G.22 [1 occurrence] - MST Standard 3 - Geometry Strand - Students will use visualization and spatial reasoning to analyze characteristics and properties of geometric shapes. [Locus] - Performance Indicator G.G.22 - solve problems using compound loci [Geometry]

MST3-G.G.23 [1 occurrence] - MST Standard 3 - Geometry Strand - Students will use visualization and spatial reasoning to analyze characteristics and properties of geometric shapes. [Locus] - Performance Indicator G.G.23 - graph and solve compound loci in the coordinate plane [Geometry]

MST3-G.G.27 [1 occurrence] - MST Standard 3 - Geometry Strand - Students will identify and justify geometric relationships formally and informally. [Informal and Formal Proofs] - Performance Indicator G.G.27 - write a proof arguing from a given hypothesis to a given conclusion [Geometry]

MST3-G.G.28 [1 occurrence] - MST Standard 3 - Geometry Strand - Students will identify and justify geometric relationships formally and informally. [Informal and Formal Proofs] - Performance Indicator G.G.28 - determine the congruence of two triangles by using one of the five congruence techniques (sss, sas, asa, aas, hl), given sufficient information about the sides and/or angles of two congruent triangles [Geometry]

MST3-G.G.29 [1 occurrence] - MST Standard 3 - Geometry Strand - Students will identify and justify geometric relationships formally and informally. [Informal and Formal Proofs] - Performance Indicator G.G.29 - identify corresponding parts of congruent triangles [Geometry]

MST3-G.G.41 [1 occurrence] - MST Standard 3 - Geometry Strand - Students will identify and justify geometric relationships formally and informally. [Informal and Formal Proofs] - Performance Indicator G.G.41 - justify that some quadrilaterals are parallelograms, rhombuses, rectangles, squares, or trapezoids [Geometry]

MST3-G.G.54 [1 occurrence] - MST Standard 3 - Geometry Strand - Students will apply transformations and symmetry to analyze problem solving situations. [Transformational Geometry] - Performance Indicator G.G.54 - define, investigate, justify, and apply isometries in the plane (rotations, reflections, translations, glide reflections) [Geometry]

MST3-G.G.55 [1 occurrence] - MST Standard 3 - Geometry Strand - Students will apply transformations and symmetry to analyze problem solving situations. [Transformational Geometry] - Performance Indicator G.G.55 - investigate, justify, and apply the properties that remain invariant under translations, rotations, reflections, and glide reflections [Geometry]

MST3-G.G.56 [1 occurrence] - MST Standard 3 - Geometry Strand - Students will apply transformations and symmetry to analyze problem solving situations. [Transformational Geometry] - Performance Indicator G.G.56 - identify specific isometries by observing orientation, numbers of invariant points, and/or parallelism [Geometry]

MST3-G.G.57 [1 occurrence] - MST Standard 3 - Geometry Strand - Students will apply transformations and symmetry to analyze problem solving situations. [Transformational Geometry] - Performance Indicator G.G.57 - justify geometric relationships (perpendicularity, parallelism, congruence) using transformational techniques (translations, rotations, reflections) [Geometry]

MST3-G.G.58 [1 occurrence] - MST Standard 3 - Geometry Strand - Students will apply transformations and symmetry to analyze problem solving situations. [Transformational Geometry] - Performance Indicator G.G.58 - define, investigate, justify, and apply similarities (dilations and the composition of dilations and isometries) [Geometry]

MST3-G.G.69 [1 occurrence] - MST Standard 3 - Geometry Strand - Students will apply coordinate geometry to analyze problem solving situations. [Coordinate Geometry] - Performance Indicator G.G.69 - investigate, justify, and apply the properties of triangles and quadrilaterals in the coordinate plane, using the distance, midpoint, and slope formulas [Geometry]