Moon Area School District Curriculum Map
Course: Core Geometry
Grade Level: 9/10
Content Area: Math
Frequency: Full-Year Course

Unit – Projected Basics of Geometry

Big Ideas/EQs	Focus Standard(s)	Assessed Competencies (Key content and skills)	Timeline
How can you use patterns to help you make predictions? What is Inductive Reasoning? Why does Geometery have postulates and undefined terms? What things can intersect? How are segment and angle measures used in real-life?	2.1.11.A (Introduced) Use operations (e.g., opposite, reciprocal, absolute value, raising to a power, finding roots, finding logarithms). 2.3.11.B (Introduced) Measure and compare angles in degrees and radians. 2.5.11.B (Introduced) Use symbols, mathematical terminology, standard notation, mathematical rules, graphing and other types of mathematical representations to communicate observations, predictions, concepts, procedures, generalizations,	Content: - Patterns - Inductive Reasoning - Points, Lines, and Planes - Intersections - Segments - Angles Skills: - Find and Identify Patterns - Use Patterns and Make Predictions - Use Inductive Reasoning to make Conjectures - Understand and use Postulates and undefined terms - Sketch simple figures and their intersections - Measure segments - Add segment lengths - Measure and classify angles - Add angle measures	August - September

	ideas and results. 2.5.11.C (Introduced) Present mathematical procedures and results clearly, systematically, succinctly and correctly. 2.8.11.A (Introduced) Analyze a given set of data for the existence of a pattern and represent the pattern algebraically and graphically. 2.9.11.I (Introduced) Model situations geometrically to formulate and solve problems.	Present mathematical procedures and results clearly, systematically, succinctly and correctly. Analyze a given set of data for the existence of a pattern and repres the pattern algebraically and graphically. Model situations geometrically to formulate and solve problems.	

Unit – Segments and Angles

Big Ideas/EQs	Focus Standard(s)	Assessed Competencies (Key content and skills)	Timeline
What is a bisector? How is arithmetic and algebra used in finding angle measures? What is deductive reasoning?	2.5.11.A (Introd Select and use appropriate mathematical c and techniques different areas mathematics ar them to solving routine and mu problems. 2.5.11.B (Introd	Content: - Segment Bisectors - Angle Bisectors - Complementary and Supplementary Angles - Vertical Angles - Deductive Reasoning - If-Then Statements - Properties of Equality and Congruence Skills: - Bisect a segment - Calculate the midpoint of a segment	Septem ber-October

How are properties used to support reasoning?	Use symbols, mathematical terminology, standard notation, mathematical rules, graphing and other types of mathematical representations to communicate observations, predictions, concepts, procedures, generalizations, ideas and results. 2.9.11.A (Introduced) Construct geometric figures using dynamic geometry tools (e.g., Geometer's Sketchpad, Cabri Geometry).	- Bisect an angle - Calculate the measurements of complementary and supplementary angles - Find the measures of angles formed by intersecting lines - Write and use if-then statements - Apply the Laws of Detachment and Syllogism - Name and use the following properties of congruence and equality: Reflexive, Symmetric, Transitive, Addition, Subtraction, Multiplication, Division, Substitution	

Unit – Parallel and Perpendicular Lines

Big Ideas/EQs	Focus Standard(s)	Assessed Competencies (Key content and skills)	Timeline
Who uses parallel and perpendicular lines? How can you show two lines are parallel?	2.4.11.A (Introduced) Use direct proofs, indirect proofs or proof by contradiction to validate conjectures. 2.5.11.B (Introduced)	Content: - Parallel Lines - Perpendicular Lines - Skew Lines - Transversals - If-Then Statements - Translations Skills:	October-November

How are the concepts of parallel and perpendicular used in designing every-day items? How do you translate?	Use symbols, mathematical terminology, standard notation, mathematical rules, graphing and other types of mathematical representations to communicate observations, predictions, concepts, procedures, generalizations, ideas and results. 2.5.11.C (Introduced) Present mathematical procedures and results clearly, systematically, succinctly and correctly. 2.9.11.A (Introduced) Construct geometric figures using dynamic geometry tools (e.g., Geometer's Sketchpad, Cabri Geometry). 2.9.11.H (Introduced) Construct a geometric figure and its image using various transformations.	- Identify Parallel, Perpendicular, and Skew Lines - Prove statements about perpendicular lines using theorems - Identify angles formed by a transversal - Identify the congruent angles formed by a transversal cutting across parallel lines - Prove two lines are parallel - Write the converse of an if-then statement - Construct parallel and perpendicular lines - Prove statements using properties of parallel and perpendicular lines - Identify, draw, and describe a translation	

Unit – Triangle Relationships

Big Ideas/EQs	Focus Standard(s)	Assessed Competencies (Key content and skills)	Timeline
How are triangle relationships used in every-day life? What are the ways in which you can classify triangles? Why can a triangle not have 2 obtuse angles? How are the sides of a right triangle related? How can the Pythagorean Theorem be used to solve real-life problems?	2.1.11.A (Introduced) Use operations (e.g., opposite, reciprocal, absolute value, raising to a power, finding roots, finding logarithms). 2.3.11.B (Introduced) Measure and compare angles in degrees and radians. 2.5.11.B (Introduced) Use symbols, mathematical terminology, standard notation, mathematical rules, graphing and other types of mathematical representations to communicate observations, predictions, concepts, procedures, generalizations, ideas and results. 2.10.11.B (Introduced) Identify, create and solve practical problems involving right	Content: - Types of Triangles - Triangle Angle Measures - Pythagorean Theorem - Distance Formula - Medians of a Triangle - Triangle Inequalities Skills: - Classify Triangles according to their sides - Classify Triangles according to their angles - Calculate the missing angles of a triangle. - Use properties of isosceles and equilateral triangles to find missing measures - Calculate the missing side of a right triangle using the Pythagorean Theorem - Calculate the length of a segment using the Distance Formula - Apply the converse of the Pythagorean Theorem to determine the type of triangle - Draw and identify the median of a triangle - Find and use the centroid of a triangle - Apply the Triangle Inequality Theorem - Use triangle measurements to determine which side and angles are the largest	November-December

	triangles using the trigonometric functions and the Pythagorean Theorem.		

Unit – Congruent Triangles

Big Ideas/EQs	Focus Standard(s)	Assessed Competencies (Key content and skills)	Timeline
What are corresponding parts? How can you show triangles are congruent? How can bisectors be used to solve questions involving triangles? What is a line of symmetry? How can you determine if two figures are reflections of each other?	2.4.11.B (Introduced) Construct valid arguments from stated facts. 2.5.11.B (Introduced) Use symbols, mathematical terminology, standard notation, mathematical rules, graphing and other types of mathematical representations to communicate observations, predictions, concepts, procedures, generalizations, ideas and results. 2.9.11.B (Introduced) Prove that two triangles or two polygons are congruent or similar using algebraic,	Content: - Congruence and Triangles - Prove Triangles are Congruent - Hypotenuse-Leg Congruence Theorems - Angle Bisectors - Perpendicular Bisectors - Symmetry - Reflections Skills: - Identify corresponding parts of congruent triangles. - Determine if triangles are congruent. - Prove triangles are congruent using SSS. - Prove triangles are congruent using SAS - Prove triangles are congruent using ASA. - Prove triangles are congruent using AAS. - Use the Hypotenuse-Leg Congruence Theorem. - Show corresponding parts of congruent triangles are congruent. - Prove statements using angle and perpendicular bisectors. - Identify and draw reflections. - Determine lines of symmetry.	January - February

	coordinate and deductive proofs. 2.9.11.D (Introduced) Identify corresponding parts in congruent triangles to solve problems. 2.9.11.H (Introduced) Construct a geometric figure and its image using various transformations. 2.9.11.J (Introduced) Analyze figures in terms of the kinds of symmetries they have.	Use symbols, mathematical terminology, standard notation, mathematical rules, graphing and other types of mathematical representations to communicate observations, predictions, concepts procedures, generalizations, ideas and results. Present mathematical procedures and results clearly, systematically, succinctly and correctly. Analyze a given set of data for the existence of a pattern and repres the pattern algebraically and graphically. Model situations geometrically to formulate and solve problems.	

Unit – Quadrilaterals

Big Ideas/EQs	Focus Standard(s)	Assessed Competencies (Key content and skills)	Timeline
Who uses special quadrilateral shapes in designing items?	2.4.11.A (Introduced) Use direct proofs, indirect proofs	Content: - Polygons - Parallelograms - Rhombuses - Rectangles	February-March

What is a polygon? How do the side and angle measures of quadrilaterials determine their special names. Why is a square a parallelogram, but a parallelogram is not a square?	or proof by contradiction to validate conjectures. 2.4.11.B (Introduced) Construct valid arguments from stated facts. 2.5.11.B (Introduced) Use symbols, mathematical terminology, standard notation, mathematical rules, graphing and other types of mathematical representations to communicate observations, predictions, concepts, procedures, generalizations, ideas and results. 2.9.11.C (Introduced) Identify and pro properties of quadrilaterals ir opposite sides a angles, consecu sides and angle diagonals using deductive proof	- Squares - Trapezoids Skills: - Identify and classify polygons - Calculate angle measures of guadrilaterals - Use properties of parallelograms to find side and angle measures - Show a quadrilaterial is a parallelogram by comparing side and angle measures - Use properties of Rhombuses, Rectangles and Squares to find side and angle measures. - Use properties of trapezoids to find side and angle measures. - Identify special quadrilaterals based on limited information	

Unit – Similarity

Big Ideas/EQs	Focus Standard(s)	Assessed Competencies (Key content and skills)	Timeline
Where is the concept of similarity used in real-life? How can you show triangles are similar? What is a ratio? How are proportions related to similarity? What is a dilation?	2.1.11.A (Introduced) Use operations (e.g., opposite, reciprocal, absolute value, raising to a power, finding roots, finding logarithms). 2.4.11.A (Introduced) Use direct proofs, indirect proofs or proof by contradiction to validate conjectures. 2.5.11.B (Introduced) Use symbols, mathematical terminology, standard notation, mathematical rules, graphing and other types of mathematical representations to communicate observations, predictions, concepts, procedures, generalizations, ideas and results.	Content: - Ratio and Proportion - Similar Polygons - Similar Triangles - Dilations Skills: - Write and solve a proportion - Use ratios to solve problems - Identify similar polygons and use them to solve problems - Show two triangles are similar using AA. - Show two triangles are similar using SSS - Show two triangles are similar using SAS - Use the Triangle Proportionality Theorem and its converse to calculate segment lengths. - Identify and draw dilations. - Use proportions to solve problems dealing with dilations.	March

Unit – Polygons and Area

Big Ideas/EQs	Focus Standard(s)	Assessed Competencies (Key content and skills)	Timeline

How is the concept of finding area of a polygon useful in real-life? How can you tell convex from concave? How is the area of triangles, squares and parallelograms related to the area of a rectangle? What makes a polygon regular? What is circumference?	2.1.11.A (Introduced) Use operations (e.g., opposite, reciprocal, absolute value, raising to a power, finding roots, finding logarithms). 2.3.11.B (Introduced) Measure and compare angles in degrees and radians. 2.5.11.B (Introduced) Use symbols, mathematical terminology, standard notation, mathematical rules, graphing and other types of mathematical representations to communicate observations, predictions, concepts, procedures, generalizations, ideas and results.	Content: - Polygons - Area - Circles Skills: - Identify convex, concave and regular polygons. - Calculate the measure of interior and exterior angles of polygons. - Find the area of squares and rectangles. - Divide a complex polygon into rectangles in order to calculate the area. - Find the area of triangles - Find the area of similar polygons - Find the area of parallelograms. - Find the area of trapezoids - Find the circumference and area of circles - Find the area of a sector of a circle	April

Unit – Surface Area and Volume

Big Ideas/EQs	Focus Standard(s)	Assessed Competencies (Key content and skills)	Timeline
Who uses surface area and volume calculations in their work?	2.1.11.A (Introduced) Use operations (e.g., opposite,	Content: - Solid Figures - Surface Area - Volume	April

What makes a solid a polyhedron? How can a net be used to find surface area? Why does a pyramid have two different heights? What is the difference between square units and cubic units?	reciprocal, absolute value, raising to a power, finding roots, finding logarithms). 2.5.11.B (Introduced) Use symbols, mathematical terminology, standard notation, mathematical rules, graphing and other types of mathematical representations to communicate observations, predictions, concepts, procedures, generalizations, ideas and results.	Skills: - Identify and name solid figures. - Calculate the surface area of prisms and cylinders - Calculate the surface area of pyramids and cones - Calculate the volume of prisms and cylinders - Calculate the volume of pyramids and cones. - Calculate the surface area and volume of a sphere. Measure and compare angles in degrees and radians. Use symbols, mathematical terminology, standard notation, mathematical rules, graphing and other types of mathematical representations to communicate observations, predictions, concepts procedures, generalizations, ideas and results.	

Unit – Right Triangles and Trigonometry

Big Ideas/EQs	Focus Standard(s)	Assessed Competencies (Key content and skills)	Timeline
Why is simplifying square roots more accurate than using a calculator?	2.1.11.A (Introduced) Use operations (e.g., opposite, reciprocal, absolute value, raising	Content: - Square Roots - Right Triangles - Tangent, Sine, and Cosine Skills: - Multiply and simplify radicals.	April-May

What are 45-45-90 and 30-60-90 triangles? How are tangent, sine and cosine related? How can Trigonometery be used to find the height of large objects?	to a power, finding roots, finding logarithms) 2.5.11.B (Introduced) Use symbols, mathematical terminology, standard notation, mathematical rules, graphing and other types of mathematical representations to communicate observations, predictions, concepts, procedures, generalizations, ideas and results. 2.8.11.D (Introduced) Formulate expressions, equations, inequalities, systems of equations, systems of inequalities and matrices to model routine and non-routine problem situations. 2.9.11.I (Introduced) Model situations geometrically	- Use a calculator to find square roots. - Identify and calculate side lengths of 45-45-90 triangles. - Identify and calculate side lengths of 30-60-90 triangles. - Find the tangent of an acute angle. - Use tangent ratios to solve problems. - Find sine and cosine of acute angles - Use sine and cosine ratios to solve problems - Find the measure of acute angles and sides of right triangles.	

	to formulate and solve problems. 2.10.11.B (Introduced) Identify, create and solve practical problems involving right triangles using the trigonometric functions and the Pythagorean Theorem.		

Unit – Circles

Big Ideas/EQs	Focus Standard(s)	Assessed Competencies (Key content and skills)	Timeline
Who uses concepts of circles in their line of work? What is rotational symmetry? What is the difference between the concept of tangent in circles and tangent with right triangles? What are chords, secants and arcs with respect to circles.	2.5.11.B (Introduced) Use symbols, mathematical terminology, standard notation, mathematical rules, graphing and other types of mathematical representations to communicate observations, predictions, concepts, procedures, generalizations, ideas and results. 2.8.11.E (Introduced) Use equations to represent curves (e.g., lines,	Content: - Tangent - Arcs - Central Angles - Chords - Inscribed Angles - Equations of Circles - Rotations Skills: - Identify and name segments and lines related to circles - Use properties of a tangent to a circle - Use properties of arcs of circles - Identify congruent arcs and find their lengths - Use properties of chords of circles. - Find the measure of angles and chords - Use properties of inscribed angles.	May - June

How can you determine the center and the radius of a circle by its equation?	circles, ellipses, parabolas, hyperbolas). 2.8.11.J (Introduced) Demonstrate the connection between algebraic equations and inequalities and the geometry of relations in the coordinate plane. 2.9.11.E (Introduced) Solve problems involving inscribed and circumscribed polygons. 2.9.11.F (Introduced) Use the properties of angles, arcs, chords, tangents and secants to solve problems involving circles. 2.9.11.G (Introduced) Solve problems using analytic geometry 2.9.11.J (Introduced) Analyze figures in terms of the kinds of symmetries they have.	- Find the measure of inscribed angles and arcs - Write and graph the equation of a circle - Identify rotations and rotational symmetry.	