

Unit: Tools of Geometry

8 Day(s)

Topic: Points, Lines, and Planes

1 Day(s)

- The student will be able to identify and name points, lines, and planes.

Analyzing, Applying, Understanding, Remembering

Mastering - **MA.9-12.G-CO.1** - Know precise definitions of angle, circle, perpendicular line, parallel line, and line segment, based on the undefined notions of point, line, distance along a line, and distance around a circular arc.

The student will be able to identify and name segments, rays, and opposite rays.

Applying, Understanding, Remembering

Introducing, Developing, Mastering - **MA.9-12.G-CO.1** - Know precise definitions of angle, circle, perpendicular line, parallel line, and line segment, based on the undefined notions of point, line, distance along a line, and distance around a circular arc.

The student will be able to identify and name the intersections of lines and planes.

Applying, Understanding, Remembering

Mastering - **MA.9-12.G-CO.1** - Know precise definitions of angle, circle, perpendicular line, parallel line, and line segment, based on the undefined notions of point, line, distance along a line, and distance around a circular arc.

The student will be able to identify and name planes, given the points that it contains.

Applying, Understanding, Remembering

Mastering - **MA.9-12.G-CO.1** - Know precise definitions of angle, circle, perpendicular line, parallel line, and line segment, based on the undefined notions of point, line, distance along a line, and distance around a circular arc.

Topic: Measuring Segments

1 Day(s)

The student will be able to determine a segment's length, given the coordinates of its endpoints.

Applying, Understanding, Remembering

Mastering - **MA.9-12.G-CO.1** - Know precise definitions of angle, circle, perpendicular line, parallel line, and line segment, based on the undefined notions of point, line, distance along a line, and distance around a circular arc.

The student will be able to apply the segment addition postulate to determine lengths of segments or its parts.

Applying, Understanding, Remembering

Mastering - **MA.9-12.G-CO.1** - Know precise definitions of angle, circle, perpendicular line, parallel line, and line segment, based on the undefined notions of point, line, distance along a line, and distance around a circular arc.

The student will be able to compare segment lengths to determine congruence.

Applying, Understanding, Remembering

Mastering - **MA.9-12.G-CO.1** - Know precise definitions of angle, circle, perpendicular line, parallel line, and line segment, based on the undefined notions of point, line, distance along a line, and distance around a circular arc.

The student will be able to use the midpoint of a segment to determine its length or the length of its parts.

Applying, Understanding, Remembering

Mastering - **MA.9-12.G-CO.1** - Know precise definitions of angle, circle, perpendicular line, parallel line, and line segment, based on the undefined notions of point, line, distance along a line, and distance around a circular arc.

Topic: Measuring Angles

1 Day(s)

The student will be able to name an angle, given its sides and vertex.

Applying, Understanding, Remembering

Mastering - **MA.9-12.G-CO.1** - Know precise definitions of angle, circle, perpendicular line, parallel line, and line segment, based on the undefined notions of point, line, distance along a line, and distance around a circular arc.

The student will be able to use a protractor to measure and classify angles.

Applying, Understanding, Remembering

Mastering - **MA.9-12.G-CO.1** - Know precise definitions of angle, circle, perpendicular line, parallel line, and line segment, based on the undefined notions of point, line, distance along a line, and distance around a circular arc.

The student will be able to apply the angle addition postulate to determine the measure of an angle or a fraction of angle.

Applying, Understanding, Remembering

Introducing - **MA.9-12.G-CO.1** - Know precise definitions of angle, circle, perpendicular line, parallel line, and line segment, based on the undefined notions of point, line, distance along a line, and distance around a circular arc.

Topic: Exploring Angle Pairs

1 Day(s)

The student will be able to identify the types of angle pairs.

Applying, Understanding, Remembering

Unit: Tools of Geometry

8 Day(s)

Mastering - **MA.9-12.G-CO.1** - Know precise definitions of angle, circle, perpendicular line, parallel line, and line segment, based on the undefined notions of point, line, distance along a line, and distance around a circular arc.

The student will be able to use angle pairs to draw conclusions from a diagram.

Applying, Understanding, Remembering

Mastering - **MA.9-12.G-CO.1** - Know precise definitions of angle, circle, perpendicular line, parallel line, and line segment, based on the undefined notions of point, line, distance along a line, and distance around a circular arc.

The student will be able to use angle pairs to determine angle measures.

Applying, Understanding, Remembering

Mastering - **MA.9-12.G-CO.1** - Know precise definitions of angle, circle, perpendicular line, parallel line, and line segment, based on the undefined notions of point, line, distance along a line, and distance around a circular arc.

The student will be able to determine the measures of angles, given an angle bisector.

Applying, Understanding, Remembering

Mastering - **MA.9-12.G-CO.1** - Know precise definitions of angle, circle, perpendicular line, parallel line, and line segment, based on the undefined notions of point, line, distance along a line, and distance around a circular arc.

Topic: Basic Constructions

1 Day(s)

The student will be able to construct congruent segments.

Applying, Understanding, Remembering

Mastering - **MA.9-12.G-CO.12** - Make formal geometric constructions with a variety of tools and methods (compass and straightedge, string, reflective devices, paper folding, dynamic geometric software, etc.).

The student will be able to construct congruent angles.

Applying, Understanding, Remembering

Mastering - **MA.9-12.G-CO.12** - Make formal geometric constructions with a variety of tools and methods (compass and straightedge, string, reflective devices, paper folding, dynamic geometric software, etc.).

The student will be able to construct a perpendicular bisector.

Applying, Understanding, Remembering

Mastering - **MA.9-12.G-CO.12** - Make formal geometric constructions with a variety of tools and methods (compass and straightedge, string, reflective devices, paper folding, dynamic geometric software, etc.).

The student will be able to construct an angle bisector.

Applying, Understanding, Remembering

Mastering - **MA.9-12.G-CO.12** - Make formal geometric constructions with a variety of tools and methods (compass and straightedge, string, reflective devices, paper folding, dynamic geometric software, etc.).

Topic: Midpoint and Distance in the Coordinate Plane

1 Day(s)

The student will be able to locate a midpoint of a segment on a coordinate plane.

Applying, Understanding, Remembering

Developing, Mastering - **MA.9-12.G-GPE.4** - Use coordinates to prove simple geometric theorems algebraically.

Developing, Mastering - **MA.9-12.G-GPE.6** - Find the point on a directed line segment between two given points that partitions the segment in a given ratio.

Developing, Mastering - **MA.9-12.G-GPE.7** - Use coordinates to compute perimeters of polygons and areas of triangles and rectangles, e.g., using the distance formula.

The student will be able to locate the endpoint of a segment on a coordinate plane.

Applying, Understanding, Remembering

Developing, Mastering - **MA.9-12.G-GPE.4** - Use coordinates to prove simple geometric theorems algebraically.

Developing, Mastering - **MA.9-12.G-GPE.6** - Find the point on a directed line segment between two given points that partitions the segment in a given ratio.

Developing, Mastering - **MA.9-12.G-GPE.7** - Use coordinates to compute perimeters of polygons and areas of triangles and rectangles, e.g., using the distance formula.

The student will be able to determine the distance of a segment on a coordinate plane.

Applying, Understanding, Remembering

Developing, Mastering - **MA.9-12.G-GPE.4** - Use coordinates to prove simple geometric theorems algebraically.

Developing, Mastering - **MA.9-12.G-GPE.5** - Prove the slope criteria for parallel and perpendicular lines and use them to solve geometric problems (e.g., find the equation of a line parallel or perpendicular to a given line that passes through a given point).

Developing, Mastering - **MA.9-12.G-GPE.6** - Find the point on a directed line segment between two given points that partitions the segment in a given ratio.

Unit: Tools of Geometry

8 Day(s)

Topic: Perimeter, Circumference, and Area

1 Day(s)

The student will be able to find the perimeter of a rectangle.

Applying, Understanding, Remembering

Mastering - **MA.9-12.N-Q.1** - Use units as a way to understand problems and to guide the solution of multi-step problems; choose and interpret units consistently in formulas; choose and interpret the scale and the origin in graphs and data displays.

The student will be able to find the perimeter of a triangle.

Applying, Understanding, Remembering

Mastering - **MA.9-12.N-Q.1** - Use units as a way to understand problems and to guide the solution of multi-step problems; choose and interpret units consistently in formulas; choose and interpret the scale and the origin in graphs and data displays.

The student will be able to find the circumference of a circle.

Applying, Understanding, Remembering

Mastering - **MA.9-12.N-Q.1** - Use units as a way to understand problems and to guide the solution of multi-step problems; choose and interpret units consistently in formulas; choose and interpret the scale and the origin in graphs and data displays.

The student will be able to calculate the area of a rectangle.

Applying, Understanding, Remembering

Mastering - **MA.9-12.N-Q.1** - Use units as a way to understand problems and to guide the solution of multi-step problems; choose and interpret units consistently in formulas; choose and interpret the scale and the origin in graphs and data displays.

The student will be able to calculate the area of a triangle.

Applying, Understanding, Remembering

Introducing - **MA.9-12.N-Q.1** - Use units as a way to understand problems and to guide the solution of multi-step problems; choose and interpret units consistently in formulas; choose and interpret the scale and the origin in graphs and data displays.

The student will be able to calculate the area of a circle.

Applying, Understanding, Remembering

Mastering - **MA.9-12.N-Q.1** - Use units as a way to understand problems and to guide the solution of multi-step problems; choose and interpret units consistently in formulas; choose and interpret the scale and the origin in graphs and data displays.

Unit: Reasoning and Proof

8 Day(s)

Topic: Patterns and Inductive Reasoning

1 Day(s)

The student will be able to draw conclusions by determining a pattern.

Applying, Understanding, Remembering

Assessment: quiz

student work

performance task

Developing, Mastering - **MA.9-12.G-CO.10** - Prove theorems about triangles.

Developing, Mastering - **MA.9-12.G-CO.11** - Prove theorems about parallelograms.

Developing, Mastering - **MA.9-12.G-CO.9** - Prove theorems about lines and angles.

The student will be able to use inductive reasoning to make predictions and draw conclusions.

Applying, Understanding, Remembering

Assessment: quiz

student work

performance task

Developing, Mastering - **MA.9-12.G-CO.10** - Prove theorems about triangles.

Developing, Mastering - **MA.9-12.G-CO.11** - Prove theorems about parallelograms.

Developing, Mastering - **MA.9-12.G-CO.9** - Prove theorems about lines and angles.

The student will be able to collect given information and make a conjecture from it.

Applying, Understanding, Remembering

Developing, Mastering - **MA.9-12.G-CO.10** - Prove theorems about triangles.

Developing, Mastering - **MA.9-12.G-CO.11** - Prove theorems about parallelograms.

Developing, Mastering - **MA.9-12.G-CO.9** - Prove theorems about lines and angles.

The student will be able to make predictions, using inductive reasoning.

Applying, Understanding, Remembering

Assessment: quiz

student work

performance task

Developing, Mastering - **MA.9-12.G-CO.10** - Prove theorems about triangles.

Unit: Reasoning and Proof

8 Day(s)

Developing, Mastering - **MA.9-12.G.CO.11** - Prove theorems about parallelograms.

Developing, Mastering - **MA.9-12.G.CO.9** - Prove theorems about lines and angles.

The student will be able to prove a statement or conjecture false, using a counterexample.

Applying, Understanding, Remembering

Assessment: quiz

student work

performance task

unit test

Developing, Mastering - **MA.9-12.G.CO.11** - Prove theorems about parallelograms.

Developing, Mastering - **MA.9-12.G.CO.12** - Make formal geometric constructions with a variety of tools and methods (compass and straightedge, string, reflective devices, paper folding, dynamic geometric software, etc.).

Developing, Mastering - **MA.9-12.G.CO.9** - Prove theorems about lines and angles.

Topic: Conditional Statements

1 Day(s)

The student will be able to identify the hypothesis and conclusion of a conditional statement.

Applying, Understanding, Remembering

Developing, Mastering - **MA.9-12.G.CO.10** - Prove theorems about triangles.

Developing, Mastering - **MA.9-12.G.CO.11** - Prove theorems about parallelograms.

Developing, Mastering - **MA.9-12.G.CO.9** - Prove theorems about lines and angles.

The student will be able to write a statement in the form of a conditional.

Applying, Understanding, Remembering

Developing, Mastering - **MA.9-12.G.CO.10** - Prove theorems about triangles.

Developing, Mastering - **MA.9-12.G.CO.11** - Prove theorems about parallelograms.

Developing, Mastering - **MA.9-12.G.CO.9** - Prove theorems about lines and angles.

The student will be able to determine the truth value of a statement by using counterexamples.

Applying, Understanding, Remembering

Developing, Mastering - **MA.9-12.G.CO.10** - Prove theorems about triangles.

Developing, Mastering - **MA.9-12.G.CO.11** - Prove theorems about parallelograms.

Developing, Mastering - **MA.9-12.G.CO.9** - Prove theorems about lines and angles.

The student will be able to determine the truth value of a statement, using its converse, inverse, and contrapositive.

Applying, Understanding, Remembering

Developing, Mastering - **MA.9-12.G.CO.10** - Prove theorems about triangles.

Developing, Mastering - **MA.9-12.G.CO.11** - Prove theorems about parallelograms.

Developing, Mastering - **MA.9-12.G.CO.9** - Prove theorems about lines and angles.

Topic: Biconditionals and Definitions

1 Day(s)

The student will be able to write a biconditional, using a statement and its converse.

Applying, Understanding, Remembering

Developing, Mastering - **MA.9-12.G.CO.10** - Prove theorems about triangles.

Developing, Mastering - **MA.9-12.G.CO.11** - Prove theorems about parallelograms.

Developing, Mastering - **MA.9-12.G.CO.9** - Prove theorems about lines and angles.

The student will be able to identify a conditional statement, its converse, hypothesis, and conclusion, given a biconditional

Applying, Understanding, Remembering

Developing, Mastering - **MA.9-12.G.CO.11** - Prove theorems about parallelograms.

Developing, Mastering - **MA.9-12.G.CO.12** - Make formal geometric constructions with a variety of tools and methods (compass and straightedge, string, reflective devices, paper folding, dynamic geometric software, etc.).

Developing, Mastering - **MA.9-12.G.CO.9** - Prove theorems about lines and angles.

The student will be able to write a definition as a biconditional.

Applying, Understanding, Remembering

Developing, Mastering - **MA.9-12.G.CO.10** - Prove theorems about triangles.

Developing, Mastering - **MA.9-12.G.CO.11** - Prove theorems about parallelograms.

Developing, Mastering - **MA.9-12.G.CO.9** - Prove theorems about lines and angles.

The student will be able to use biconditional statements to recognize valid definitions.

Applying, Understanding, Remembering

Developing, Mastering - **MA.9-12.G.CO.10** - Prove theorems about triangles.

Developing, Mastering - **MA.9-12.G.CO.11** - Prove theorems about parallelograms.

Developing, Mastering - **MA.9-12.G.CO.9** - Prove theorems about lines and angles.

Unit: Reasoning and Proof

8 Day(s)

Topic: Deductive Reasoning

1 Day(s)

The student will be able to use the law of detachment to conclude if a statement is true or false.

Applying, Understanding, Remembering

Developing, Mastering - **MA.9-12.G.CO.10** - Prove theorems about triangles.

Developing, Mastering - **MA.9-12.G.CO.11** - Prove theorems about parallelograms.

Developing, Mastering - **MA.9-12.G.CO.9** - Prove theorems about lines and angles.

The student will be able to use the law of syllogism to conclude if a statement is true or false.

Applying, Understanding, Remembering

Developing, Mastering - **MA.9-12.G.CO.10** - Prove theorems about triangles.

Developing, Mastering - **MA.9-12.G.CO.11** - Prove theorems about parallelograms.

Developing, Mastering - **MA.9-12.G.CO.9** - Prove theorems about lines and angles.

The student will be able to use the laws of both detachment and syllogism to conclude if a statement is true or false.

Applying, Understanding, Remembering

Developing, Mastering - **MA.9-12.G.CO.10** - Prove theorems about triangles.

Developing, Mastering - **MA.9-12.G.CO.11** - Prove theorems about parallelograms.

Developing, Mastering - **MA.9-12.G.CO.9** - Prove theorems about lines and angles.

Topic: Reasoning in algebra and geometry

1 Day(s)

The student will be able to justify the solution to an equation, using the properties of equality.

Analyzing, Applying, Understanding, Remembering

Developing, Mastering - **MA.9-12.G.CO.11** - Prove theorems about parallelograms.

Developing, Mastering - **MA.9-12.G.CO.12** - Make formal geometric constructions with a variety of tools and methods (compass and straightedge, string, reflective devices, paper folding, dynamic geometric software, etc.).

Developing, Mastering - **MA.9-12.G.CO.9** - Prove theorems about lines and angles.

The student will be able to apply the properties of equality to congruence.

Analyzing, Applying, Understanding, Remembering

Developing, Mastering - **MA.9-12.G.CO.10** - Prove theorems about triangles.

Developing, Mastering - **MA.9-12.G.CO.11** - Prove theorems about parallelograms.

Developing, Mastering - **MA.9-12.G.CO.9** - Prove theorems about lines and angles.

The student will be able to write a column proof.

Analyzing, Applying, Understanding, Remembering

Developing, Mastering - **MA.9-12.G.CO.10** - Prove theorems about triangles.

Developing, Mastering - **MA.9-12.G.CO.11** - Prove theorems about parallelograms.

Developing, Mastering - **MA.9-12.G.CO.9** - Prove theorems about lines and angles.

Topic: Proving angles congruent

1 Day(s)

The student will be able to prove the measurements of angles, using the vertical angles theorem.

Developing, Mastering - **MA.9-12.G.CO.11** - Prove theorems about parallelograms.

Developing, Mastering - **MA.9-12.G.CO.12** - Make formal geometric constructions with a variety of tools and methods (compass and straightedge, string, reflective devices, paper folding, dynamic geometric software, etc.).

Developing, Mastering - **MA.9-12.G.CO.9** - Prove theorems about lines and angles.

The student will be able to prove congruence, using the vertical angles theorem.

Analyzing, Applying, Understanding, Remembering

Developing, Mastering - **MA.9-12.G.CO.10** - Prove theorems about triangles.

Developing, Mastering - **MA.9-12.G.CO.11** - Prove theorems about parallelograms.

Developing, Mastering - **MA.9-12.G.CO.9** - Prove theorems about lines and angles.

The student will be able to write a paragraph proof.

Developing, Mastering - **MA.9-12.G.CO.11** - Prove theorems about parallelograms.

Developing, Mastering - **MA.9-12.G.CO.12** - Make formal geometric constructions with a variety of tools and methods (compass and straightedge, string, reflective devices, paper folding, dynamic geometric software, etc.).

Developing, Mastering - **MA.9-12.G.CO.9** - Prove theorems about lines and angles.

Unit: Parallel and Perpendicular lines

10 Day(s)

Topic: Lines and Angles

1 Day(s)

Unit: Parallel and Perpendicular lines

10 Day(s)

The student will be able to identify the types of non-intersecting lines and planes.

Applying, Understanding, Remembering

Developing, Mastering - **MA.9-12.G-CO.1** - Know precise definitions of angle, circle, perpendicular line, parallel line, and line segment, based on the undefined notions of point, line, distance along a line, and distance around a circular arc.

The student will be able to identify angle pairs formed by a transversal and parallel lines.

Applying, Understanding, Remembering

Mastering - **MA.9-12.G-CO.1** - Know precise definitions of angle, circle, perpendicular line, parallel line, and line segment, based on the undefined notions of point, line, distance along a line, and distance around a circular arc.

The student will be able to classify angle pairs.

Applying, Understanding, Remembering

Mastering - **MA.9-12.G-CO.1** - Know precise definitions of angle, circle, perpendicular line, parallel line, and line segment, based on the undefined notions of point, line, distance along a line, and distance around a circular arc.

Topic: Properties of Parallel Lines

1 Day(s)

The student will be able to identify supplementary and congruent angles in a transversal diagram.

Analyzing, Applying, Understanding, Remembering

Mastering - **MA.9-12.G-CO.9** - Prove theorems about lines and angles.

The student will be able to prove angle relationships using angle pairs.

Analyzing, Applying, Understanding, Remembering

Mastering - **MA.9-12.G-CO.9** - Prove theorems about lines and angles.

The student will be able to find the measures of angles in a transversal diagram.

Applying, Understanding, Remembering

Mastering - **MA.9-12.G-CO.9** - Prove theorems about lines and angles.

Topic: Proving Lines Parallel

1 Day(s)

The student will be able to use angle pairs to identify parallel lines.

Applying, Understanding, Remembering

Developing, Mastering - **MA.9-12.G-CO.9** - Prove theorems about lines and angles.

The student will be able to write a flow proof to prove that lines are parallel.

Analyzing, Applying, Understanding, Remembering

Mastering - **MA.9-12.G-CO.9** - Prove theorems about lines and angles.

The student will be able to determine the conditions of angle pairs that would indicate parallel lines.

Applying, Understanding, Remembering

Mastering - **MA.9-12.G-CO.9** - Prove theorems about lines and angles.

Apply algebra to determine solutions that would indicate parallel lines.

Introducing - **MA.9-12.G-CO.9** - Prove theorems about lines and angles.

Topic: Parallel and Perpendicular Lines

1 Day(s)

The student will be able to apply parallel lines as a solution to real-world problems.

Applying, Understanding, Remembering

Developing, Mastering - **MA.9-12.G-MG.3** - Apply geometric methods to solve design problems (e.g., designing an object or structure to satisfy physical constraints or minimize cost; working with typographic grid systems based on ratios).

The student will be able to prove lines as parallel or perpendicular, given the relationship of the lines in a diagram.

Analyzing, Applying, Understanding

Mastering - **MA.9-12.G-MG.3** - Apply geometric methods to solve design problems (e.g., designing an object or structure to satisfy physical constraints or minimize cost; working with typographic grid systems based on ratios).

Topic: Parallel Lines and Triangles

1 Day(s)

The student will be able to prove and apply the triangle angle sum theorem.

Analyzing, Applying, Understanding, Remembering

Developing, Mastering - **MA.9-12.G-CO.10** - Prove theorems about triangles.

Unit: Parallel and Perpendicular lines

10 Day(s)

The student will be able to prove and apply the exterior angle theorem of triangles.

Applying, Understanding, Remembering

Developing, Mastering - **MA.9-12.G-CO.10** - Prove theorems about triangles.

The student will be able to apply triangle theorems to solve real-world problems.

Analyzing, Applying, Understanding, Remembering

Developing, Mastering - **MA.9-12.G-CO.10** - Prove theorems about triangles.

Topic: Constructing Parallel and Perpendicular Lines

1 Day(s)

The student will be able to construct parallel lines, using a straightedge and a compass.

Analyzing, Applying, Understanding, Remembering

Developing, Mastering - **MA.9-12.G-CO.12** - Make formal geometric constructions with a variety of tools and methods (compass and straightedge, string, reflective devices, paper folding, dynamic geometric software, etc.).

The student will be able to construct perpendicular lines, using a straightedge and a compass.

Analyzing, Applying, Understanding, Remembering

Developing, Mastering - **MA.9-12.G-CO.12** - Make formal geometric constructions with a variety of tools and methods (compass and straightedge, string, reflective devices, paper folding, dynamic geometric software, etc.).

The student will be able to construct special quadrilaterals, using a straightedge and a compass.

Applying, Understanding, Remembering

Developing, Mastering - **MA.9-12.G-CO.12** - Make formal geometric constructions with a variety of tools and methods (compass and straightedge, string, reflective devices, paper folding, dynamic geometric software, etc.).

The student will be able to construct regular polygons, using a straightedge and a compass.

Analyzing, Applying, Understanding

Developing, Mastering - **MA.9-12.G-CO.12** - Make formal geometric constructions with a variety of tools and methods (compass and straightedge, string, reflective devices, paper folding, dynamic geometric software, etc.).

Topic: Equations of lines in the coordinate plane

1 Day(s)

Students will be able to determine the slope of a line.

Analyzing, Applying, Understanding, Remembering

Developing, Mastering - **MA.9-12.G-GPE.5** - Prove the slope criteria for parallel and perpendicular lines and use them to solve geometric problems (e.g., find the equation of a line parallel or perpendicular to a given line that passes through a given point).

Graph lines from a given equation.

Analyzing, Applying, Understanding, Remembering

Developing, Mastering - **MA.9-12.G-GPE.5** - Prove the slope criteria for parallel and perpendicular lines and use them to solve geometric problems (e.g., find the equation of a line parallel or perpendicular to a given line that passes through a given point).

Write the equation of a line, given a graph or coordinates.

Analyzing, Applying, Understanding, Remembering

Developing, Mastering - **MA.9-12.G-GPE.5** - Prove the slope criteria for parallel and perpendicular lines and use them to solve geometric problems (e.g., find the equation of a line parallel or perpendicular to a given line that passes through a given point).

Write the equations of horizontal and vertical lines.

Analyzing, Applying, Understanding, Remembering

Developing, Mastering - **MA.9-12.G-GPE.5** - Prove the slope criteria for parallel and perpendicular lines and use them to solve geometric problems (e.g., find the equation of a line parallel or perpendicular to a given line that passes through a given point).

Topic: Slopes of Parallel and Perpendicular Lines

1 Day(s)

Students will be able to check for parallel lines.

Analyzing, Applying, Understanding, Remembering

Developing, Mastering - **MA.9-12.G-GPE.5** - Prove the slope criteria for parallel and perpendicular lines and use them to solve geometric problems (e.g., find the equation of a line parallel or perpendicular to a given line that passes through a given point).

Students will be able to write equations of parallel lines.

Analyzing, Applying, Understanding, Remembering

Developing, Mastering - **MA.9-12.G-GPE.5** - Prove the slope criteria for parallel and perpendicular lines and use them to solve geometric problems (e.g., find the equation of a line parallel or perpendicular to a given line that passes through a given point).

Unit: Parallel and Perpendicular lines

10 Day(s)

Students will be able to check for perpendicular lines.

Analyzing, Applying, Understanding, Remembering

Developing, Mastering - **MA.9-12.G-GPE.5** - Prove the slope criteria for parallel and perpendicular lines and use them to solve geometric problems (e.g., find the equation of a line parallel or perpendicular to a given line that passes through a given point).

Students will be able to write equations for perpendicular lines.

Analyzing, Applying, Understanding, Remembering

Developing, Mastering - **MA.9-12.G-GPE.5** - Prove the slope criteria for parallel and perpendicular lines and use them to solve geometric problems (e.g., find the equation of a line parallel or perpendicular to a given line that passes through a given point).

Unit: Congruent triangles

8 Day(s)

Topic: Congruent Figures

1 Day(s)

Students will be able to determine corresponding congruent parts.

Understanding, Remembering

Developing - **MA.9-12.G-SRT.5** - Use congruence and similarity criteria for triangles to solve problems and to prove relationships in geometric figures.

Students will be able to apply congruent parts to find unknown measures.

Applying, Understanding, Remembering

Developing - **MA.9-12.G-SRT.5** - Use congruence and similarity criteria for triangles to solve problems and to prove relationships in geometric figures.

Students will be able to determine congruent figures, using corresponding parts.

Applying, Understanding, Remembering

Developing - **MA.9-12.G-SRT.5** - Use congruence and similarity criteria for triangles to solve problems and to prove relationships in geometric figures.

Students will be able to prove triangles congruent.

Applying, Understanding, Remembering

Developing - **MA.9-12.G-SRT.5** - Use congruence and similarity criteria for triangles to solve problems and to prove relationships in geometric figures.

Topic: Triangle congruence by SSS and SAS

1 Day(s)

Students will be able to apply the SSS postulate.

Analyzing, Applying

Mastering - **MA.9-12.G-SRT.5** - Use congruence and similarity criteria for triangles to solve problems and to prove relationships in geometric figures.

Students will be able to apply the SAS postulate.

Analyzing, Applying

Mastering - **MA.9-12.G-SRT.5** - Use congruence and similarity criteria for triangles to solve problems and to prove relationships in geometric figures.

Students will be able to use SSS and SAS to determine congruence.

Analyzing, Applying

Mastering - **MA.9-12.G-SRT.5** - Use congruence and similarity criteria for triangles to solve problems and to prove relationships in geometric figures.

Topic: Triangle Congruence by ASA and AAS

1 Day(s)

Students will be able to prove and apply the ASA theorem.

Analyzing, Applying

Mastering - **MA.9-12.G-SRT.5** - Use congruence and similarity criteria for triangles to solve problems and to prove relationships in geometric figures.

Students will be able to prove and apply the AAS theorem.

Analyzing, Applying

Mastering - **MA.9-12.G-SRT.5** - Use congruence and similarity criteria for triangles to solve problems and to prove relationships in geometric figures.

Students will be able to prove congruence, using AAS and ASA.

Analyzing, Applying

Unit: Congruent triangles

8 Day(s)

Mastering - **MA.9-12.G-SRT.5** - Use congruence and similarity criteria for triangles to solve problems and to prove relationships in geometric figures.

Topic: Using Corresponding Parts of Congruent Triangles

1 Day(s)

Students will be able to apply congruence to determine the measures of corresponding parts.

Analyzing, Applying

Mastering - **MA.9-12.G-SRT.5** - Use congruence and similarity criteria for triangles to solve problems and to prove relationships in geometric figures.

Students will be able to prove specific parts of triangles congruent.

Analyzing, Applying

Mastering - **MA.9-12.G-SRT.5** - Use congruence and similarity criteria for triangles to solve problems and to prove relationships in geometric figures.

Topic: Isosceles and Equilateral Triangles

1 Day(s)

Students will be able to prove and apply the angle and side properties of isosceles triangles.

Analyzing, Applying

Mastering - **MA.9-12.G-CO.10** - Prove theorems about triangles.

Students will be able to prove and apply the angle and side properties of equilateral triangles.

Analyzing, Applying

Mastering - **MA.9-12.G-CO.10** - Prove theorems about triangles.

Students will be able to apply the properties of isosceles and equilateral triangles to the solution of algebra problems.

Applying

Mastering - **MA.9-12.G-CO.10** - Prove theorems about triangles.

Topic: Congruence in right triangles

1 Day(s)

Students will be able to prove and apply the H-L theorem.

Analyzing, Applying

Mastering - **MA.9-12.G-SRT.5** - Use congruence and similarity criteria for triangles to solve problems and to prove relationships in geometric figures.

Students will be able to apply the HL theorem to prove congruence

Applying

Mastering - **MA.9-12.G-SRT.5** - Use congruence and similarity criteria for triangles to solve problems and to prove relationships in geometric figures.

Topic: Congruence in Overlapping Triangles

1 Day(s)

Students will be able to identify common parts of overlapping triangles.

Applying

Mastering - **MA.9-12.G-SRT.5** - Use congruence and similarity criteria for triangles to solve problems and to prove relationships in geometric figures.

Students will be able to use common parts of overlapping triangles to prove congruence.

Applying

Mastering - **MA.9-12.G-SRT.5** - Use congruence and similarity criteria for triangles to solve problems and to prove relationships in geometric figures.

Students will be able to prove geometric concepts by using more than one pair of overlapping triangles.

Applying

Mastering - **MA.9-12.G-SRT.5** - Use congruence and similarity criteria for triangles to solve problems and to prove relationships in geometric figures.

Students will be able to separate overlapping triangles.

Applying

Mastering - **MA.9-12.G-SRT.5** - Use congruence and similarity criteria for triangles to solve problems and to prove relationships in geometric figures.

Unit: Relationships within triangles

8 Day(s)

Topic: Midsegments of Triangles

1 Day(s)

Students will be able to apply midsegments to determine parallel segments.

Applying

Mastering - MA.9-12.G.CO.10 - Prove theorems about triangles.

Students will be able to use midsegments to determine the measures of parts of triangles.

Introducing - MA.9-12.G.CO.10 - Prove theorems about triangles.

Students will be able to prove the properties of midsegments.

Applying, Understanding

Mastering - MA.9-12.G.CO.10 - Prove theorems about triangles.

Students will be able to use midsegments to indirectly determine measures.

Applying, Understanding

Mastering - MA.9-12.G.CO.10 - Prove theorems about triangles.

Topic: Perpendicular and Angle Bisectors

1 Day(s)

Students will be able to prove and apply the perpendicular bisector theorem

Analyzing, Applying, Understanding

Mastering - MA.9-12.G.CO.9 - Prove theorems about lines and angles.

Mastering - MA.9-12.G.SRT.5 - Use congruence and similarity criteria for triangles to solve problems and to prove relationships in geometric figures.

Students will be able to apply the perpendicular bisector theorem to determine measures.

Mastering - MA.9-12.G.CO.10 - Prove theorems about triangles.

Mastering - MA.9-12.G.SRT.5 - Use congruence and similarity criteria for triangles to solve problems and to prove relationships in geometric figures.

Students will be able to apply the perpendicular bisector theorem as a solution to algebra problems.

Applying

Mastering - MA.9-12.G.CO.10 - Prove theorems about triangles.

Mastering - MA.9-12.G.SRT.5 - Use congruence and similarity criteria for triangles to solve problems and to prove relationships in geometric figures.

Topic: Bisectors in triangles

1 Day(s)

Students will be able to locate the circumcenter of a triangle.

Applying

Mastering - MA.9-12.G-C.3 - Construct the inscribed and circumscribed circles of a triangle, and prove properties of angles for a quadrilateral inscribed in a circle.

Students will be able to apply the properties of a triangle circumcenter.

Applying

Mastering - MA.9-12.G-C.3 - Construct the inscribed and circumscribed circles of a triangle, and prove properties of angles for a quadrilateral inscribed in a circle.

Students will be able to identify the incenter of a triangle.

Applying

Mastering - MA.9-12.G-C.3 - Construct the inscribed and circumscribed circles of a triangle, and prove properties of angles for a quadrilateral inscribed in a circle.

Topic: Medians and Altitudes

1 Day(s)

Students will be able to find the length of a median.

Applying, Understanding, Remembering

Mastering - MA.9-12.G.CO.10 - Prove theorems about triangles.

Students will be able to identify a median and an altitude.

Applying, Understanding, Remembering

Mastering - MA.9-12.G.CO.10 - Prove theorems about triangles.

Students will be able to find the orthocenter of a triangle.

Applying, Understanding, Remembering

Mastering - MA.9-12.G.CO.10 - Prove theorems about triangles.

Unit: Relationships within triangles

8 Day(s)

Topic: Indirect Proof

1 Day(s)

Students will be able to identify contradictions of statements.

Applying

Mastering - **MA.9-12.G-CO.10** - Prove theorems about triangles.

Students will be able to write an indirect proof.

Applying

Introducing - **MA.9-12.G-CO.10** - Prove theorems about triangles.**Topic:** Inequalities in one triangle

1 Day(s)

Students will be able to apply inequalities to the Exterior Angle Theorem.

Applying

Mastering - **MA.9-12.G-CO.10** - Prove theorems about triangles.

Students will be able to use triangle inequality to compare the measures of the sides of a triangle.

Applying

Mastering - **MA.9-12.G-CO.10** - Prove theorems about triangles.

Students will be able to use triangle inequality to compare the measures of angles of a triangle.

Applying

Mastering - **MA.9-12.G-CO.10** - Prove theorems about triangles.**Topic:** Inequalities in two triangles

1 Day(s)

Students will be able to apply the "Hinge Theorem" to make comparisons between two triangles.

Applying

Mastering - **MA.9-12.G-CO.10** - Prove theorems about triangles.

Students will be able to apply the hinge theorem to prove relationships in triangles.

Analyzing, Applying

Mastering - **MA.9-12.G-CO.10** - Prove theorems about triangles.

Students will be able to apply the hinge theorem to write and solve algebraic inequalities.

Applying

Mastering - **MA.9-12.G-CO.10** - Prove theorems about triangles.**Unit:** Polygons and Quadrilaterals

10 Day(s)

Topic: The polygon angle sum theorems

1 Day(s)

Students will be able to find the angle sum of a polygon.

Applying, Understanding, Remembering

Mastering - **MA.9-12.G-SRT.5** - Use congruence and similarity criteria for triangles to solve problems and to prove relationships in geometric figures.

Students will be able to use the polygon angle sum theorem to solve problems.

Applying

Mastering - **MA.9-12.G-SRT.5** - Use congruence and similarity criteria for triangles to solve problems and to prove relationships in geometric figures.

Students will be able to find the measure of an exterior angle of a polygon.

Applying

Mastering - **MA.9-12.G-SRT.5** - Use congruence and similarity criteria for triangles to solve problems and to prove relationships in geometric figures.**Topic:** properties of parallelograms

1 Day(s)

Students will be able to use the consecutive angles of a parallelogram to find other angle measures.

Applying

Mastering - **MA.9-12.G-CO.11** - Prove theorems about parallelograms.

Students will be able to the the properties of a parallelogram in a proof.

Analyzing, Applying

Unit: Polygons and Quadrilaterals

10 Day(s)

Mastering - MA.9-12.G-CO.11 - Prove theorems about parallelograms.

Students will be able to apply algebra to parallelograms to calculate measures.

Applying

Mastering - MA.9-12.G-CO.11 - Prove theorems about parallelograms.

Students will be able to use parallel lines and transversals to find measures.

Applying

Mastering - MA.9-12.G-CO.11 - Prove theorems about parallelograms.

Topic: proving a quadrilateral is a parallelogram

1 Day(s)

Students will be able to find the measures the sides of parallelograms

Applying

Mastering - MA.9-12.G-CO.11 - Prove theorems about parallelograms.

Students will be able to determine whether a quadrilateral is a parallelogram.

Applying

Mastering - MA.9-12.G-CO.11 - Prove theorems about parallelograms.

Students will be able to identify parallelograms from given properties of a quadrilateral.

Applying

Mastering - MA.9-12.G-CO.11 - Prove theorems about parallelograms.

Topic: properties of rhombuses, rectangles, and squares

1 Day(s)

Students will be able to classify special parallelograms.

Applying

Mastering - MA.9-12.G-CO.11 - Prove theorems about parallelograms.

Students will be able to determine the angle measures of special parallelograms.

Applying

Mastering - MA.9-12.G-CO.11 - Prove theorems about parallelograms.

Students will be able to determine the length of a diagonal.

Applying

Mastering - MA.9-12.G-CO.11 - Prove theorems about parallelograms.

Topic: conditions for rhombuses, rectangles, and squares

1 Day(s)

Students will be able to identify special parallelograms, given a set of properties.

Applying

Mastering - MA.9-12.G-CO.11 - Prove theorems about parallelograms.

Students will be able to use the properties of special parallelograms to determine measures.

Applying

Mastering - MA.9-12.G-CO.11 - Prove theorems about parallelograms.

Students will be able to apply the properties of special parallelograms to solve real-world problems.

Applying

Mastering - MA.9-12.G-CO.11 - Prove theorems about parallelograms.

Topic: trapezoids and kites

1 Day(s)

Students will be able to find the angle measures of trapezoids.

Applying

Mastering - MA.9-12.G-SRT.5 - Use congruence and similarity criteria for triangles to solve problems and to prove relationships in geometric figures.

Students will be able to find the angle measures of isosceles trapezoids.

Applying

Mastering - MA.9-12.G-SRT.5 - Use congruence and similarity criteria for triangles to solve problems and to prove relationships in geometric figures.

Students will be able to find and use the midsegment of a trapezoid.

Applying

Unit: Polygons and Quadrilaterals

10 Day(s)

Mastering - **MA.9-12.G-SRT.5** - Use congruence and similarity criteria for triangles to solve problems and to prove relationships in geometric figures.

Students will be able to find the angle measures of kites.

Applying

Mastering - **MA.9-12.G-SRT.5** - Use congruence and similarity criteria for triangles to solve problems and to prove relationships in geometric figures.

Topic: polygons in the coordinate plane

1 Day(s)

Students will be able to classify a triangle in a coordinate plane.

Applying

Mastering - **MA.9-12.G-GPE.7** - Use coordinates to compute perimeters of polygons and areas of triangles and rectangles, e.g., using the distance formula.

Students will be able to classify a parallelogram in a coordinate plane.

Applying

Mastering - **MA.9-12.G-GPE.7** - Use coordinates to compute perimeters of polygons and areas of triangles and rectangles, e.g., using the distance formula.

Students will be able to classify a quadrilateral in a coordinate plane.

Analyzing, Applying

Mastering - **MA.9-12.G-GPE.7** - Use coordinates to compute perimeters of polygons and areas of triangles and rectangles, e.g., using the distance formula.

Topic: applying coordinate geometry

1 Day(s)

Students will be able to determine the coordinates of vertices of a figure in a coordinate plane.

Applying

Mastering - **MA.9-12.G-GPE.4** - Use coordinates to prove simple geometric theorems algebraically.

Students will be able to use variable coordinates.

Analyzing, Applying

Mastering - **MA.9-12.G-GPE.4** - Use coordinates to prove simple geometric theorems algebraically.

Students will be able to make a coordinate proof.

Analyzing, Applying

Mastering - **MA.9-12.G-GPE.4** - Use coordinates to prove simple geometric theorems algebraically.

Topic: proofs using coordinate geometry

1 Day(s)

Students will be able to write a coordinate proof, using variable coordinates.

Applying

Mastering - **MA.9-12.G-GPE.4** - Use coordinates to prove simple geometric theorems algebraically.

Unit: Similarity

7 Day(s)

Topic: ratios and proportions

1 Day(s)

Students will be able to write a ratio.

Applying

Mastering - **MA.9-12.G-SRT.5** - Use congruence and similarity criteria for triangles to solve problems and to prove relationships in geometric figures.

Students will be able to divide a quantity into a given ratio.

Applying

Mastering - **MA.9-12.G-SRT.5** - Use congruence and similarity criteria for triangles to solve problems and to prove relationships in geometric figures.

Students will be able to use an extended ratio to solve problems.

Applying

Mastering - **MA.9-12.G-SRT.5** - Use congruence and similarity criteria for triangles to solve problems and to prove relationships in geometric figures.

Students will be able to solve a proportion.

Applying

Unit: Similarity

7 Day(s)

Mastering - **MA.9-12.G-SRT.5** - Use congruence and similarity criteria for triangles to solve problems and to prove relationships in geometric figures.

Students will be able to write equivalent proportions.

Applying

Mastering - **MA.9-12.G-SRT.5** - Use congruence and similarity criteria for triangles to solve problems and to prove relationships in geometric figures.

Topic: similar polygons

1 Day(s)

Students will be able to understand and explain similarity.

Understanding

Mastering - **MA.9-12.G-SRT.5** - Use congruence and similarity criteria for triangles to solve problems and to prove relationships in geometric figures.

Students will be able to determine similarity.

Applying

Mastering - **MA.9-12.G-SRT.5** - Use congruence and similarity criteria for triangles to solve problems and to prove relationships in geometric figures.

Students will be able to use similar polygons to determine measures.

Applying

Mastering - **MA.9-12.G-SRT.5** - Use congruence and similarity criteria for triangles to solve problems and to prove relationships in geometric figures.

Students will be able to apply ratios and proportions to determine measures.

Applying

Mastering - **MA.9-12.G-SRT.5** - Use congruence and similarity criteria for triangles to solve problems and to prove relationships in geometric figures.

Students will be able to make an apply a scale drawing.

Applying

Mastering - **MA.9-12.G-SRT.5** - Use congruence and similarity criteria for triangles to solve problems and to prove relationships in geometric figures.

Students will be able to make an apply a scale drawing.

Applying

Mastering - **MA.9-12.G-SRT.5** - Use congruence and similarity criteria for triangles to solve problems and to prove relationships in geometric figures.

Topic: proving triangles similar

1 Day(s)

Students will be able to prove and apply the AA- postulate and SSS, and SAS similarity theorems.

Evaluating

Assessment: quiz
performance tasks
student work

Mastering - **MA.9-12.G-GPE.5** - Prove the slope criteria for parallel and perpendicular lines and use them to solve geometric problems (e.g., find the equation of a line parallel or perpendicular to a given line that passes through a given point).

Mastering - **MA.9-12.G-SRT.5** - Use congruence and similarity criteria for triangles to solve problems and to prove relationships in geometric figures.

Students will be able to determine triangle similarity.

Assessment: quiz
performance tasks
student work
unit test

Mastering - **MA.9-12.G-GPE.5** - Prove the slope criteria for parallel and perpendicular lines and use them to solve geometric problems (e.g., find the equation of a line parallel or perpendicular to a given line that passes through a given point).

Mastering - **MA.9-12.G-SRT.5** - Use congruence and similarity criteria for triangles to solve problems and to prove relationships in geometric figures.

Students will be able to prove triangles similar.

Assessment: quiz
performance tasks
student work
unit test

Unit: Similarity

7 Day(s)

Mastering - **MA.9-12.G-GPE.5** - Prove the slope criteria for parallel and perpendicular lines and use them to solve geometric problems (e.g., find the equation of a line parallel or perpendicular to a given line that passes through a given point).

Mastering - **MA.9-12.G-SRT.5** - Use congruence and similarity criteria for triangles to solve problems and to prove relationships in geometric figures.

Students will be able to make indirect measurements with similar triangles.

Assessment: quiz
performance tasks
student work
unit test

Topic: similarity in right triangles

1 Day(s)

Students will be able to identify similar right triangles.

Analyzing, Applying

Assessment: quiz
performance tasks
student work
unit test

Mastering - **MA.9-12.G-GPE.5** - Prove the slope criteria for parallel and perpendicular lines and use them to solve geometric problems (e.g., find the equation of a line parallel or perpendicular to a given line that passes through a given point).

Mastering - **MA.9-12.G-SRT.5** - Use congruence and similarity criteria for triangles to solve problems and to prove relationships in geometric figures.

Students will be able to find the geometric mean of a pair of values.

Applying, Understanding, Remembering

Assessment: quiz
performance tasks
student work
unit test

Mastering - **MA.9-12.G-GPE.5** - Prove the slope criteria for parallel and perpendicular lines and use them to solve geometric problems (e.g., find the equation of a line parallel or perpendicular to a given line that passes through a given point).

Mastering - **MA.9-12.G-SRT.5** - Use congruence and similarity criteria for triangles to solve problems and to prove relationships in geometric figures.

Students will be able to determine the measures of all parts of similar right triangles.

Analyzing, Applying

Assessment: quiz
performance tasks
student work
unit test

Mastering - **MA.9-12.G-GPE.5** - Prove the slope criteria for parallel and perpendicular lines and use them to solve geometric problems (e.g., find the equation of a line parallel or perpendicular to a given line that passes through a given point).

Mastering - **MA.9-12.G-SRT.5** - Use congruence and similarity criteria for triangles to solve problems and to prove relationships in geometric figures.

Topic: proportions in triangles

1 Day(s)

Students will be able to prove and apply the side-splitter theorem.

Applying

Assessment: quiz
performance tasks
student work
unit test

Mastering - **MA.9-12.G-SRT.4** - Prove theorems about triangles.

Students will be able to find the measure of unknown lengths, using the side-splitter theorem.

Applying

Assessment: quiz
performance tasks
student work
unit test

Mastering - **MA.9-12.G-SRT.4** - Prove theorems about triangles.

Unit: Similarity

7 Day(s)

Students will be able to prove and apply the Triangle Angle Bisector Theorem to find unknown measures.

Applying

Assessment: quiz
performance tasks
student work
unit test

Mastering - **MA.9-12.G-SRT.4** - Prove theorems about triangles.

Unit: Right Triangles and Trigonometry

8 Day(s)

Topic: pythagorean theorem and its converse

1 Day(s)

Students will be able to find the length of a hypotenuse.

Applying

Assessment: quiz
performance tasks
student work
unit test

Mastering - **MA.9-12.G-SRT.8** - Use trigonometric ratios and the Pythagorean Theorem to solve right triangles in applied

Students will be able to find the length of a leg.

Applying

Assessment: quiz
performance tasks
student work
unit test

Mastering - **MA.9-12.G-SRT.8** - Use trigonometric ratios and the Pythagorean Theorem to solve right triangles in applied

Students will be able to apply Pythagorean Theorem to calculate distance.

Applying

Assessment: quiz
performance tasks
student work
unit test

Mastering - **MA.9-12.G-SRT.8** - Use trigonometric ratios and the Pythagorean Theorem to solve right triangles in applied

Students will be able to apply inequalities to the pythagorean theorem to classify triangles.

Analyzing, Applying

Assessment: quiz
performance tasks
student work
unit test

Mastering - **MA.9-12.G-SRT.8** - Use trigonometric ratios and the Pythagorean Theorem to solve right triangles in applied

Topic: special right triangles

1 Day(s)

Students will be able to apply the properties of special right triangles to find the length of a hypotenuse.

Applying

Assessment: quiz
performance tasks
student work
unit test

Mastering - **MA.9-12.G-SRT.8** - Use trigonometric ratios and the Pythagorean Theorem to solve right triangles in applied

Students will be able to find the leg of a special right triangle.

Applying

Assessment: quiz
performance tasks
student work
unit test

Mastering - **MA.9-12.G-SRT.8** - Use trigonometric ratios and the Pythagorean Theorem to solve right triangles in applied

Unit: Right Triangles and Trigonometry

8 Day(s)

Students will be able to apply special right triangles to find distance.

Applying

Assessment: quiz
performance tasks
student work
unit test

Mastering - **MA.9-12.G-SRT.8** - Use trigonometric ratios and the Pythagorean Theorem to solve right triangles in applied

Students will be able to apply special right triangles to find the height and side length of a triangle.

Applying

Assessment: quiz
performance tasks
student work
unit test

Mastering - **MA.9-12.G-SRT.8** - Use trigonometric ratios and the Pythagorean Theorem to solve right triangles in applied

Topic: trigonometry

1 Day(s)

Students will be able to write the three basic trigonometric ratios.

Assessment: quiz
performance tasks
student work
unit test

Mastering - **MA.9-12.G-MG.1** - Use geometric shapes, their measures, and their properties to describe objects (e.g., modeling a tree trunk or a human torso as a cylinder).

Mastering - **MA.9-12.G-SRT.8** - Use trigonometric ratios and the Pythagorean Theorem to solve right triangles in applied

Students will be able to find distances with trigonometric ratios.

Applying

Assessment: quiz
performance tasks
student work
unit test

Mastering - **MA.9-12.G-MG.1** - Use geometric shapes, their measures, and their properties to describe objects (e.g., modeling a tree trunk or a human torso as a cylinder).

Mastering - **MA.9-12.G-SRT.8** - Use trigonometric ratios and the Pythagorean Theorem to solve right triangles in applied

Students will be able to find angle measures by using trigonometric inverses.

Applying

Assessment: quiz
performance tasks
student work
unit test

Mastering - **MA.9-12.G-MG.1** - Use geometric shapes, their measures, and their properties to describe objects (e.g., modeling a tree trunk or a human torso as a cylinder).

Mastering - **MA.9-12.G-SRT.8** - Use trigonometric ratios and the Pythagorean Theorem to solve right triangles in applied

Topic: angles of elevation and depression

1 Day(s)

Students will be able to identify angles of elevation and depression.

Applying

Assessment: quiz
performance tasks
student work
unit test

Mastering - **MA.9-12.G-SRT.8** - Use trigonometric ratios and the Pythagorean Theorem to solve right triangles in applied

Students will be able to solve problems by finding angles of elevation and depression.

Analyzing, Applying

Assessment: quiz
performance tasks
student work
unit test

Mastering - **MA.9-12.G-SRT.8** - Use trigonometric ratios and the Pythagorean Theorem to solve right triangles in applied

Unit: Right Triangles and Trigonometry

8 Day(s)

Students will be able to determine distances using angles of elevation and depression.

Analyzing, Applying

Assessment: quiz
performance tasks
student work
unit test

Mastering - **MA.9-12.G-SRT.8** - Use trigonometric ratios and the Pythagorean Theorem to solve right triangles in applied

Topic: law of sines

1 Day(s)

Students will be able to find the length of a side of a triangle, using the law of sines.

Applying

Assessment: quiz
performance tasks
student work
unit test

Mastering - **MA.9-12.G-SRT.11** - Understand and apply the Law of Sines and the Law of Cosines to find unknown measurements in right and non-right triangles (e.g., surveying problems, resultant forces).

Students will be able to find the measure of an angles, using the law of sines.

Applying

Assessment: quiz
performance tasks
student work
unit test

Mastering - **MA.9-12.G-SRT.11** - Understand and apply the Law of Sines and the Law of Cosines to find unknown measurements in right and non-right triangles (e.g., surveying problems, resultant forces).

Students will be able to solve a real-world problem, using the law of sines.

Applying

Assessment: quiz
performance tasks
student work
unit test

Mastering - **MA.9-12.G-SRT.11** - Understand and apply the Law of Sines and the Law of Cosines to find unknown measurements in right and non-right triangles (e.g., surveying problems, resultant forces).

Topic: law of cosines

1 Day(s)

Students will be able to use the law of cosines to find the length of a side of a triangle.

Applying

Assessment: quiz
performance tasks
student work
unit test

Mastering - **MA.9-12.G-SRT.11** - Understand and apply the Law of Sines and the Law of Cosines to find unknown measurements in right and non-right triangles (e.g., surveying problems, resultant forces).

Students will be able to use the law of cosines to find the measure of an angle.

Applying

Assessment: quiz
performance tasks
student work
unit test

Mastering - **MA.9-12.G-SRT.11** - Understand and apply the Law of Sines and the Law of Cosines to find unknown measurements in right and non-right triangles (e.g., surveying problems, resultant forces).

Students will be able to use the law of cosines to solve a real-world problem.

Applying

Assessment: quiz
performance tasks
student work
unit test

Mastering - **MA.9-12.G-SRT.11** - Understand and apply the Law of Sines and the Law of Cosines to find unknown measurements in right and non-right triangles (e.g., surveying problems, resultant forces).

Unit: Transformations

9 Day(s)

Topic: translations

1 Day(s)

Students will be able to identify a rigid motion.

Applying

Assessment: quiz
performance tasks
student work
unit test

Mastering - **MA.9-12.G-CO.5** - Given a geometric figure and a rotation, reflection, or translation, draw the transformed figure using, e.g., graph paper, tracing paper, or geometry software. Specify a sequence of transformations that will carry a given figure onto another.

Students will be able to name pre-images, images, and corresponding parts.

Applying

Assessment: quiz
performance tasks
student work
unit test

Mastering - **MA.9-12.G-CO.5** - Given a geometric figure and a rotation, reflection, or translation, draw the transformed figure using, e.g., graph paper, tracing paper, or geometry software. Specify a sequence of transformations that will carry a given figure onto another.

Students will be able to find the image of a translation, using notation.

Applying

Assessment: quiz
performance tasks
student work
unit test

Mastering - **MA.9-12.G-CO.5** - Given a geometric figure and a rotation, reflection, or translation, draw the transformed figure using, e.g., graph paper, tracing paper, or geometry software. Specify a sequence of transformations that will carry a given figure onto another.

Students will be able to write a rule that describes a translation.

Applying

Assessment: quiz
performance tasks
student work
unit test

Mastering - **MA.9-12.G-CO.5** - Given a geometric figure and a rotation, reflection, or translation, draw the transformed figure using, e.g., graph paper, tracing paper, or geometry software. Specify a sequence of transformations that will carry a given figure onto another.

Students will be able to compose translations.

Applying

Assessment: quiz
performance tasks
student work
unit test

Mastering - **MA.9-12.G-CO.5** - Given a geometric figure and a rotation, reflection, or translation, draw the transformed figure using, e.g., graph paper, tracing paper, or geometry software. Specify a sequence of transformations that will carry a given figure onto another.

Topic: reflections

1 Day(s)

Students will be able to reflect a point across a line.

Applying

Assessment: quiz
performance tasks
student work
unit test

Mastering - **MA.9-12.G-CO.5** - Given a geometric figure and a rotation, reflection, or translation, draw the transformed figure using, e.g., graph paper, tracing paper, or geometry software. Specify a sequence of transformations that will carry a given figure onto another.

Unit: Transformations

9 Day(s)

Students will be able to graph a reflection image.

Applying

Assessment: quiz
performance tasks
student work
unit test

Mastering - **MA.9-12.G-CO.5** - Given a geometric figure and a rotation, reflection, or translation, draw the transformed figure using, e.g., graph paper, tracing paper, or geometry software. Specify a sequence of transformations that will carry a given figure onto another.

Students will be able to write a reflection rule.

Applying

Assessment: quiz
performance tasks
student work
unit test

Mastering - **MA.9-12.G-CO.5** - Given a geometric figure and a rotation, reflection, or translation, draw the transformed figure using, e.g., graph paper, tracing paper, or geometry software. Specify a sequence of transformations that will carry a given figure onto another.

Students will be able to use the properties of reflections to solve problems.

Applying

Assessment: quiz
performance tasks
student work
unit test

Mastering - **MA.9-12.G-CO.5** - Given a geometric figure and a rotation, reflection, or translation, draw the transformed figure using, e.g., graph paper, tracing paper, or geometry software. Specify a sequence of transformations that will carry a given figure onto another.

Topic: rotations

1 Day(s)

Students will be able to draw a rotation image.

Applying

Assessment: quiz
performance tasks
student work
unit test

Mastering - **MA.9-12.G-CO.4** - Develop definitions of rotations, reflections, and translations in terms of angles, circles, perpendicular lines, parallel lines, and line segments.

Students will be able to draw rotations in a coordinate plane.

Applying

Assessment: quiz
performance tasks
student work
unit test

Mastering - **MA.9-12.G-CO.4** - Develop definitions of rotations, reflections, and translations in terms of angles, circles, perpendicular lines, parallel lines, and line segments.

Students will be able to apply properties of rotations to solve problems.

Applying

Assessment: quiz
performance tasks
student work
unit test

Mastering - **MA.9-12.G-CO.4** - Develop definitions of rotations, reflections, and translations in terms of angles, circles, perpendicular lines, parallel lines, and line segments.

Topic: composition of isometries

1 Day(s)

Students will be able to compose reflections across parallel lines.

Assessment: quiz
performance tasks
student work
unit test

Unit: Transformations

9 Day(s)

Mastering - **MA.9-12.G-CO.5** - Given a geometric figure and a rotation, reflection, or translation, draw the transformed figure using, e.g., graph paper, tracing paper, or geometry software. Specify a sequence of transformations that will carry a given figure onto another.

Mastering - **MA.9-12.G-CO.6** - Use geometric descriptions of rigid motions to transform figures and to predict the effect of a given rigid motion on a given figure; given two figures, use the definition of congruence in terms of rigid motions to decide if they are

Students will be able to find a glide reflection image.

Applying

Assessment: quiz
performance tasks
student work
unit test

Mastering - **MA.9-12.G-CO.5** - Given a geometric figure and a rotation, reflection, or translation, draw the transformed figure using, e.g., graph paper, tracing paper, or geometry software. Specify a sequence of transformations that will carry a given figure onto another.

Mastering - **MA.9-12.G-CO.6** - Use geometric descriptions of rigid motions to transform figures and to predict the effect of a given rigid motion on a given figure; given two figures, use the definition of congruence in terms of rigid motions to decide if they are

Students will be able to compose reflections across intersecting lines.

Assessment: quiz
performance tasks
student work
unit test

Mastering - **MA.9-12.G-CO.5** - Given a geometric figure and a rotation, reflection, or translation, draw the transformed figure using, e.g., graph paper, tracing paper, or geometry software. Specify a sequence of transformations that will carry a given figure onto another.

Mastering - **MA.9-12.G-CO.6** - Use geometric descriptions of rigid motions to transform figures and to predict the effect of a given rigid motion on a given figure; given two figures, use the definition of congruence in terms of rigid motions to decide if they are

Topic: congruence transformations

1 Day(s)

Students will be able to identify equal measures in transformations.

Applying

Assessment: quiz
performance tasks
student work
unit test

Mastering - **MA.9-12.G-CO.7** - Use the definition of congruence in terms of rigid motions to show that two triangles are congruent if and only if corresponding pairs of sides and corresponding pairs of angles are congruent.

Students will be able to identify congruent figures.

Applying

Assessment: quiz
performance tasks
student work
unit test

Mastering - **MA.9-12.G-CO.7** - Use the definition of congruence in terms of rigid motions to show that two triangles are congruent if and only if corresponding pairs of sides and corresponding pairs of angles are congruent.

Students will be able to identify congruence transformations, given an image.

Applying

Assessment: quiz
performance tasks
student work
unit test

Mastering - **MA.9-12.G-CO.7** - Use the definition of congruence in terms of rigid motions to show that two triangles are congruent if and only if corresponding pairs of sides and corresponding pairs of angles are congruent.

Students will be able to verify the SAS postulate.

Analyzing

Assessment: quiz
performance tasks
student work
unit test

Mastering - **MA.9-12.G-CO.7** - Use the definition of congruence in terms of rigid motions to show that two triangles are congruent if and only if corresponding pairs of sides and corresponding pairs of angles are congruent.

Unit: Transformations

9 Day(s)

Students will be able to determine congruence.

Applying

Assessment: quiz
performance tasks
student work
unit test

Mastering - **MA.9-12.G-CO.7** - Use the definition of congruence in terms of rigid motions to show that two triangles are congruent if and only if corresponding pairs of sides and corresponding pairs of angles are congruent.

Topic: Dilations

1 Day(s)

Students will be able to find the scale factor.

Applying

Mastering - **MA.9-12.G-SRT.1** - Verify experimentally the properties of dilations given by a center and a scale factor:
- A dilation takes a line not passing through the center of the dilation to a parallel line, and leaves a line passing through the center unchanged.
- The dilation of a line segment is longer or shorter in the ratio given by the scale factor.

Students will be able to find a dilation image.

Applying

Assessment: quiz
performance tasks
student work
unit test

Mastering - **MA.9-12.G-SRT.1** - Verify experimentally the properties of dilations given by a center and a scale factor:
- A dilation takes a line not passing through the center of the dilation to a parallel line, and leaves a line passing through the center unchanged.
- The dilation of a line segment is longer or shorter in the ratio given by the scale factor.

Students will be able to use a scale factor to determine lengths.

Applying

Assessment: quiz
performance tasks
student work
unit test

Mastering - **MA.9-12.G-SRT.1** - Verify experimentally the properties of dilations given by a center and a scale factor:
- A dilation takes a line not passing through the center of the dilation to a parallel line, and leaves a line passing through the center unchanged.
- The dilation of a line segment is longer or shorter in the ratio given by the scale factor.

Topic: Similarity Transformations

1 Day(s)

Students will be able to draw similarity transformations

Applying

Assessment: quiz
performance tasks
student work
unit test

Mastering - **MA.9-12.G-SRT.2** - Given two figures, use the definition of similarity in terms of similarity transformations to decide if they are similar; explain using similarity transformations the meaning of similarity for triangles as the equality of all corresponding pairs of angles and the proportionality of all corresponding pairs of sides.

Students will be able to describe transformations.

Applying

Assessment: quiz
performance tasks
student work
unit test

Mastering - **MA.9-12.G-SRT.2** - Given two figures, use the definition of similarity in terms of similarity transformations to decide if they are similar; explain using similarity transformations the meaning of similarity for triangles as the equality of all corresponding pairs of angles and the proportionality of all corresponding pairs of sides.

Unit: Transformations

9 Day(s)

Students will be able to find similarity transformations.

Applying

Assessment: quiz
performance tasks
student work
unit test

Mastering - **MA.9-12.G-SRT.2** - Given two figures, use the definition of similarity in terms of similarity transformations to decide if they are similar; explain using similarity transformations the meaning of similarity for triangles as the equality of all corresponding pairs of angles and the proportionality of all corresponding pairs of sides.

Students will be able to determine similarity

Applying

Assessment: quiz
performance tasks
student work
unit test

Mastering - **MA.9-12.G-SRT.2** - Given two figures, use the definition of similarity in terms of similarity transformations to decide if they are similar; explain using similarity transformations the meaning of similarity for triangles as the equality of all corresponding pairs of angles and the proportionality of all corresponding pairs of sides.

Unit: Area

10 Day(s)

Topic: Areas of Parallelograms and triangles

1 Day(s)

Students will be able to find the area of a parallelogram.

Applying

Assessment: quiz
performance tasks
student work
unit test

Mastering - **MA.9-12.G-GPE.7** - Use coordinates to compute perimeters of polygons and areas of triangles and rectangles, e.g., using the distance formula.

Mastering - **MA.9-12.G-MG.1** - Use geometric shapes, their measures, and their properties to describe objects (e.g., modeling a tree trunk or a human torso as a cylinder).

Students will be able to find the missing dimension of a parallelogram.

Assessment: quiz
performance tasks
student work
unit test

Mastering - **MA.9-12.G-GPE.7** - Use coordinates to compute perimeters of polygons and areas of triangles and rectangles, e.g., using the distance formula.

Mastering - **MA.9-12.G-MG.1** - Use geometric shapes, their measures, and their properties to describe objects (e.g., modeling a tree trunk or a human torso as a cylinder).

Students will be able to find the area of a triangle.

Applying

Assessment: quiz
performance tasks
student work
unit test

Mastering - **MA.9-12.G-GPE.7** - Use coordinates to compute perimeters of polygons and areas of triangles and rectangles, e.g., using the distance formula.

Mastering - **MA.9-12.G-MG.1** - Use geometric shapes, their measures, and their properties to describe objects (e.g., modeling a tree trunk or a human torso as a cylinder).

Students will be able to find the area of an irregular figure.

Applying

Assessment: quiz
performance tasks
student work
unit test

Mastering - **MA.9-12.G-GPE.7** - Use coordinates to compute perimeters of polygons and areas of triangles and rectangles, e.g., using the distance formula.

Mastering - **MA.9-12.G-MG.1** - Use geometric shapes, their measures, and their properties to describe objects (e.g., modeling a tree trunk or a human torso as a cylinder).

Unit:Area

10 Day(s)

Topic: Areas of trapezoids, rhombuses, and kites

1 Day(s)

Students will be able to find the area of a trapezoid.

Applying

Assessment: quiz
performance tasks
student work
unit test

Mastering - **MA.9-12.G-MG.1** - Use geometric shapes, their measures, and their properties to describe objects (e.g., modeling a tree trunk or a human torso as a cylinder).

Students will be able to find areas, using right triangles.

Applying

Assessment: quiz
performance tasks
student work
unit test

Mastering - **MA.9-12.G-MG.1** - Use geometric shapes, their measures, and their properties to describe objects (e.g., modeling a tree trunk or a human torso as a cylinder).

Students will be able to find the area of a kite.

Applying

Assessment: quiz
performance tasks
student work
unit test

Mastering - **MA.9-12.G-MG.1** - Use geometric shapes, their measures, and their properties to describe objects (e.g., modeling a tree trunk or a human torso as a cylinder).

Students will be able to find the area of a rhombus.

Applying

Assessment: quiz
performance tasks
student work
unit test

Mastering - **MA.9-12.G-MG.1** - Use geometric shapes, their measures, and their properties to describe objects (e.g., modeling a tree trunk or a human torso as a cylinder).

Topic: area of regular polygons

1 Day(s)

Students will be able to find the measure of a polygon's central angle.

Applying

Assessment: quiz
performance tasks
student work
unit test

Mastering - **MA.9-12.G-MG.1** - Use geometric shapes, their measures, and their properties to describe objects (e.g., modeling a tree trunk or a human torso as a cylinder).

Students will be able to find the area of regular polygons.

Applying

Assessment: quiz
performance tasks
student work
unit test

Mastering - **MA.9-12.G-MG.1** - Use geometric shapes, their measures, and their properties to describe objects (e.g., modeling a tree trunk or a human torso as a cylinder).

Students will be able to use special triangles to find area.

Applying

Assessment: quiz
performance tasks
student work
unit test

Mastering - **MA.9-12.G-MG.1** - Use geometric shapes, their measures, and their properties to describe objects (e.g., modeling a tree trunk or a human torso as a cylinder).

Unit:Area

10 Day(s)

Topic: Perimeter and Area of Similar figures

1 Day(s)

Students will be able to find the ratios of similar figures.

Applying

Assessment: quiz
performance tasks
student work
unit test

Mastering - **MA.9-12.G-GMD.3** - Use volume formulas for cylinders, pyramids, cones, and spheres to solve problems.

Students will be able to find areas, using similar figures.

Applying

Assessment: quiz
performance tasks
student work
unit test

Mastering - **MA.9-12.G-GMD.3** - Use volume formulas for cylinders, pyramids, cones, and spheres to solve problems.

Students will be able to apply area ratios to solve real-world problems.

Applying

Assessment: quiz
performance tasks
student work
unit test

Mastering - **MA.9-12.G-GMD.3** - Use volume formulas for cylinders, pyramids, cones, and spheres to solve problems.

Students will be able to find perimeter ratios of similar figures.

Applying

Assessment: quiz
performance tasks
student work
unit test

Mastering - **MA.9-12.G-GMD.3** - Use volume formulas for cylinders, pyramids, cones, and spheres to solve problems.

Topic: Trigonometry and Area

1 Day(s)

Use trigonometric ratios to find the area of polygons.

Applying

Assessment: quiz
performance tasks
student work
unit test

Mastering - **MA.9-12.G-SRT.9** - Derive the formula $A = \frac{1}{2} ab \sin(C)$ for the area of a triangle by drawing an auxiliary line from a vertex perpendicular to the opposite side.

Topic: Circles and Arcs

1 Day(s)

Students will be able to name and find the measures of arcs.

Applying

Assessment: quiz
performance tasks
student work
unit test

Mastering - **MA.9-12.G-C.1** - Prove that all circles are similar.

Mastering - **MA.9-12.G-CO.1** - Know precise definitions of angle, circle, perpendicular line, parallel line, and line segment, based on the undefined notions of point, line, distance along a line, and distance around a circular arc.

Students will be able to find the arc length of a circle to solve real-world problems.

Assessment: quiz
performance tasks
student work
unit test

Mastering - **MA.9-12.G-C.1** - Prove that all circles are similar.

Mastering - **MA.9-12.G-CO.1** - Know precise definitions of angle, circle, perpendicular line, parallel line, and line segment, based on the undefined notions of point, line, distance along a line, and distance around a circular arc.

Topic: Areas of circles and sectors

1 Day(s)

Unit:Area

10 Day(s)

Students will be able to find the area of a circle.

Applying

Assessment: quiz
performance tasks
student work
unit test

Mastering - **MA.9-12.G-C.5** - Derive using similarity the fact that the length of the arc intercepted by an angle is proportional to the radius, and define the radian measure of the angle as the constant of proportionality; derive the formula for the area of a sector.

Students will be able to find the sector area of a circle.

Applying

Assessment: quiz
performance tasks
student work
unit test

Mastering - **MA.9-12.G-C.5** - Derive using similarity the fact that the length of the arc intercepted by an angle is proportional to the radius, and define the radian measure of the angle as the constant of proportionality; derive the formula for the area of a sector.

Students will be able to find the area of a segment of a circle.

Applying

Assessment: quiz
performance tasks
student work
unit test

Mastering - **MA.9-12.G-C.5** - Derive using similarity the fact that the length of the arc intercepted by an angle is proportional to the radius, and define the radian measure of the angle as the constant of proportionality; derive the formula for the area of a sector.

Topic: Geometric Probability

1 Day(s)

Students will be able to use segments to find probability.

Applying

Assessment: quiz
performance tasks
student work
unit test

Mastering - **MA.9-12.S-CP.1** - Describe events as subsets of a sample space (the set of outcomes) using characteristics (or categories) of the outcomes, or as unions, intersections, or complements of other events ("or," "and," "not").

Students will be able to use area to find probability.

Applying

Assessment: quiz
performance tasks
student work
unit test

Mastering - **MA.9-12.S-CP.1** - Describe events as subsets of a sample space (the set of outcomes) using characteristics (or categories) of the outcomes, or as unions, intersections, or complements of other events ("or," "and," "not").

Unit:Surface Area and Volume

9 Day(s)

Topic: Space figures and cross sections

1 Day(s)

Students will be able to identify vertices, edges, and faces.

Applying

Assessment: quiz
performance tasks
student work
unit test

Mastering - **MA.9-12.G-GMD.4** - Identify the shapes of two-dimensional cross-sections of three-dimensional objects, and identify three-dimensional objects generated by rotations of two-dimensional objects.

Students will be able to derive and apply Euler's formula

Analyzing, Applying

Assessment: quiz
performance tasks
student work
unit test

Unit: Surface Area and Volume

9 Day(s)

Mastering - **MA.9-12.G-GMD.4** - Identify the shapes of two-dimensional cross-sections of three-dimensional objects, and identify three-dimensional objects generated by rotations of two-dimensional objects.

Students will be able to describe a cross section.

Applying

Assessment: quiz
performance tasks
student work
unit test

Introducing - **MA.9-12.G-GMD.4** - Identify the shapes of two-dimensional cross-sections of three-dimensional objects, and identify three-dimensional objects generated by rotations of two-dimensional objects.

Students will be able to draw a cross section.

Applying

Assessment: quiz
performance tasks
student work
unit test

Mastering - **MA.9-12.G-GMD.4** - Identify the shapes of two-dimensional cross-sections of three-dimensional objects, and identify three-dimensional objects generated by rotations of two-dimensional objects.

Topic: Surface areas of prisms and cylinders

1 Day(s)

Students will be able to use a net to find the surface area of a prism.

Applying

Assessment: quiz
performance tasks
student work
unit test

Mastering - **MA.9-12.G-MG.1** - Use geometric shapes, their measures, and their properties to describe objects (e.g., modeling a tree trunk or a human torso as a cylinder).

Students will be able to derive and apply formulas to find the surface area of a prism.

Analyzing, Applying

Assessment: quiz
performance tasks
student work
unit test

Mastering - **MA.9-12.G-MG.1** - Use geometric shapes, their measures, and their properties to describe objects (e.g., modeling a tree trunk or a human torso as a cylinder).

Students will be able to find the surface area of a cylinder.

Applying

Assessment: quiz
performance tasks
student work
unit test

Mastering - **MA.9-12.G-MG.1** - Use geometric shapes, their measures, and their properties to describe objects (e.g., modeling a tree trunk or a human torso as a cylinder).

Students will be able to find the lateral area of a cylinder.

Assessment: quiz
performance tasks
student work
unit test

Mastering - **MA.9-12.G-MG.1** - Use geometric shapes, their measures, and their properties to describe objects (e.g., modeling a tree trunk or a human torso as a cylinder).

Topic: Surface area of pyramids and cones.

1 Day(s)

Students will be able to find the surface area of a pyramid.

Applying

Assessment: quiz
performance tasks
student work
unit test

Mastering - **MA.9-12.G-MG.1** - Use geometric shapes, their measures, and their properties to describe objects (e.g., modeling a tree trunk or a human torso as a cylinder).

Unit: Surface Area and Volume

9 Day(s)

Students will be able to find the lateral area of a pyramid.

Applying

Assessment: quiz
performance tasks
student work
unit test

Mastering - **MA.9-12.G-MG.1** - Use geometric shapes, their measures, and their properties to describe objects (e.g., modeling a tree trunk or a human torso as a cylinder).

Students will be able to find the surface area of a cone.

Applying

Assessment: quiz
performance tasks
student work
unit test

Mastering - **MA.9-12.G-MG.1** - Use geometric shapes, their measures, and their properties to describe objects (e.g., modeling a tree trunk or a human torso as a cylinder).

Students will be able to find the lateral area of a cone.

Applying

Assessment: quiz
performance tasks
student work
unit test

Mastering - **MA.9-12.G-MG.1** - Use geometric shapes, their measures, and their properties to describe objects (e.g., modeling a tree trunk or a human torso as a cylinder).

Topic: Volumes of prisms and cylinders.

1 Day(s)

Students will be able to find the volume of a rectangular prism.

Assessment: quiz
performance tasks
student work
unit test

Mastering - **MA.9-12.G-GMD.1** - Give an informal argument for the formulas for the circumference of a circle, area of a circle, volume of a cylinder, pyramid, and cone.

Mastering - **MA.9-12.G-GMD.3** - Use volume formulas for cylinders, pyramids, cones, and spheres to solve problems.

Students will be able to find the volume of a triangular prism.

Assessment: quiz
performance tasks
student work
unit test

Mastering - **MA.9-12.G-GMD.1** - Give an informal argument for the formulas for the circumference of a circle, area of a circle, volume of a cylinder, pyramid, and cone.

Mastering - **MA.9-12.G-GMD.3** - Use volume formulas for cylinders, pyramids, cones, and spheres to solve problems.

Students will be able to find the volume of a cylinder

Assessment: quiz
performance tasks
student work
unit test

Mastering - **MA.9-12.G-GMD.1** - Give an informal argument for the formulas for the circumference of a circle, area of a circle, volume of a cylinder, pyramid, and cone.

Mastering - **MA.9-12.G-GMD.3** - Use volume formulas for cylinders, pyramids, cones, and spheres to solve problems.

Students will be able to find the volume of a composite figure.

Applying

Assessment: quiz
performance tasks
student work
unit test

Mastering - **MA.9-12.G-GMD.1** - Give an informal argument for the formulas for the circumference of a circle, area of a circle, volume of a cylinder, pyramid, and cone.

Mastering - **MA.9-12.G-GMD.3** - Use volume formulas for cylinders, pyramids, cones, and spheres to solve problems.

Topic: Volumes of Pyramids and Cones

1 Day(s)

Students will be able to find the volume of a pyramid.

Assessment: quiz
performance tasks
student work
unit test

Mastering - **MA.9-12.G-GMD.3** - Use volume formulas for cylinders, pyramids, cones, and spheres to solve problems.
Mastering - **MA.9-12.G-MG.1** - Use geometric shapes, their measures, and their properties to describe objects (e.g., modeling a tree trunk or a human torso as a cylinder).

Students will be able to find the volume of a cone.

Assessment: quiz
performance tasks
student work
unit test

Mastering - **MA.9-12.G-GMD.3** - Use volume formulas for cylinders, pyramids, cones, and spheres to solve problems.
Mastering - **MA.9-12.G-MG.1** - Use geometric shapes, their measures, and their properties to describe objects (e.g., modeling a tree trunk or a human torso as a cylinder).

Topic: Surface areas and Volumes of spheres

1 Day(s)

Students will be able to find the surface area of a sphere.

Assessment: quiz
performance tasks
student work
unit test

Mastering - **MA.9-12.G-GMD.3** - Use volume formulas for cylinders, pyramids, cones, and spheres to solve problems.
Mastering - **MA.9-12.G-MG.1** - Use geometric shapes, their measures, and their properties to describe objects (e.g., modeling a tree trunk or a human torso as a cylinder).

Students will be able to find the volume of a sphere.

Assessment: quiz
performance tasks
student work
unit test

Mastering - **MA.9-12.G-GMD.3** - Use volume formulas for cylinders, pyramids, cones, and spheres to solve problems.
Mastering - **MA.9-12.G-MG.1** - Use geometric shapes, their measures, and their properties to describe objects (e.g., modeling a tree trunk or a human torso as a cylinder).

Students will be able to use the volume of a sphere to find its surface area.

Applying

Assessment: quiz
performance tasks
student work
unit test

Mastering - **MA.9-12.G-GMD.3** - Use volume formulas for cylinders, pyramids, cones, and spheres to solve problems.
Mastering - **MA.9-12.G-MG.1** - Use geometric shapes, their measures, and their properties to describe objects (e.g., modeling a tree trunk or a human torso as a cylinder).

Topic: Areas and Volumes of similar solids

1 Day(s)

Students will be able to identify similar solids.

Assessment: quiz
performance tasks
student work
unit test

Mastering - **MA.9-12.G-MG.1** - Use geometric shapes, their measures, and their properties to describe objects (e.g., modeling a tree trunk or a human torso as a cylinder).
Mastering - **MA.9-12.G-MG.2** - Apply concepts of density based on area and volume in modeling situations (e.g., persons per square mile, BTUs per cubic foot).

Students will be able to find the scale factor of a pair of similar solids.

Assessment: quiz
performance tasks
student work
unit test

Mastering - **MA.9-12.G-MG.1** - Use geometric shapes, their measures, and their properties to describe objects (e.g., modeling a tree trunk or a human torso as a cylinder).

Unit: Surface Area and Volume

9 Day(s)

Mastering - **MA.9-12.G-MG.2** - Apply concepts of density based on area and volume in modeling situations (e.g., persons per square mile, BTUs per cubic foot).

Students will be able to use the scale factor of similar solids to solve real-world problems.

Assessment: quiz
performance tasks
student work
unit test

Mastering - **MA.9-12.G-MG.1** - Use geometric shapes, their measures, and their properties to describe objects (e.g., modeling a tree trunk or a human torso as a cylinder).

Mastering - **MA.9-12.G-MG.2** - Apply concepts of density based on area and volume in modeling situations (e.g., persons per square mile, BTUs per cubic foot).

Students will be able to use the scale factor of similar solids to determine liquid capacity.

Assessment: quiz
performance tasks
student work
unit test

Mastering - **MA.9-12.G-MG.1** - Use geometric shapes, their measures, and their properties to describe objects (e.g., modeling a tree trunk or a human torso as a cylinder).

Mastering - **MA.9-12.G-MG.2** - Apply concepts of density based on area and volume in modeling situations (e.g., persons per square mile, BTUs per cubic foot).

Unit: Circles

8 Day(s)

Topic: Tangent lines.

1 Day(s)

Students will be able to find angle measures, using a tangent line.

Applying

Assessment: quiz
performance tasks
student work
unit test

Introducing - **MA.9-12.G-C.2** - Identify and describe relationships among inscribed angles, radii, and chords.

Students will be able to find distance, using a tangent line.

Applying

Assessment: quiz
performance tasks
student work
unit test

Mastering - **MA.9-12.G-C.2** - Identify and describe relationships among inscribed angles, radii, and chords.

Students will be able to find the radius of a circle, using a tangent line.

Applying

Assessment: quiz
performance tasks
student work
unit test

Mastering - **MA.9-12.G-C.2** - Identify and describe relationships among inscribed angles, radii, and chords.

Students will be able to determine whether a line is tangent to a circle.

Applying

Assessment: quiz
performance tasks
student work
unit test

Mastering - **MA.9-12.G-C.2** - Identify and describe relationships among inscribed angles, radii, and chords.

Students will be able to determine the perimeter of a polygon, using an inscribed circle.

Applying

Assessment: quiz
performance tasks
student work
unit test

Mastering - **MA.9-12.G-C.2** - Identify and describe relationships among inscribed angles, radii, and chords.

Topic: Chords and Arcs

1 Day(s)

Unit: Circles

8 Day(s)

Students will be able to use congruent chords to determine arc length and angle measures

Applying

Assessment: quiz
performance tasks
student work
unit test

Mastering - **MA.9-12.G-C.2** - Identify and describe relationships among inscribed angles, radii, and chords.

Students will be able to find the length of a chord.

Applying

Assessment: quiz
performance tasks
student work
unit test

Mastering - **MA.9-12.G-C.2** - Identify and describe relationships among inscribed angles, radii, and chords.

Students will be able to length of a chord to determine the diameter of a circle.

Applying

Assessment: quiz
performance tasks
student work
unit test

Mastering - **MA.9-12.G-C.2** - Identify and describe relationships among inscribed angles, radii, and chords.

Students will be able to use chords to find the measures in a circle.

Applying

Assessment: quiz
performance tasks
student work
unit test

Mastering - **MA.9-12.G-C.2** - Identify and describe relationships among inscribed angles, radii, and chords.

Topic: inscribed angles

1 Day(s)

Students will be able to use inscribed angles to determine arc measures.

Applying

Assessment: quiz
performance tasks
student work
unit test

Mastering - **MA.9-12.G-C.1** - Prove that all circles are similar.

Mastering - **MA.9-12.G-C.2** - Identify and describe relationships among inscribed angles, radii, and chords.

Students will be able to use the corollaries of inscribed angles to find angle measures.

Applying

Assessment: quiz
performance tasks
student work
unit test

Mastering - **MA.9-12.G-C.1** - Prove that all circles are similar.

Mastering - **MA.9-12.G-C.2** - Identify and describe relationships among inscribed angles, radii, and chords.

Students will be able to use the arc measure of a circle to find the measure of its inscribed angle.

Assessment: quiz
performance tasks
student work
unit test

Mastering - **MA.9-12.G-C.1** - Prove that all circles are similar.

Mastering - **MA.9-12.G-C.2** - Identify and describe relationships among inscribed angles, radii, and chords.

Topic: Angle Measures and Segment Lengths

1 Day(s)

Students will be able to find angle measures formed by chords, secants, and tangents.

Applying

Assessment: quiz
performance tasks
student work
unit test

Unit: Circles

8 Day(s)

Mastering - **MA.9-12.G-C.2** - Identify and describe relationships among inscribed angles, radii, and chords.

Students will be able to find the arc measure of a circle, using secants, tangents, and chords.

Applying

Assessment: quiz
performance tasks
student work
unit test

Mastering - **MA.9-12.G-C.2** - Identify and describe relationships among inscribed angles, radii, and chords.

Students will be able to find the lengths of segments, formed by tangents, secants and chords.

Applying

Assessment: quiz
performance tasks
student work
unit test

Mastering - **MA.9-12.G-C.2** - Identify and describe relationships among inscribed angles, radii, and chords.

Topic: Circles in the coordinate plane

1 Day(s)

Students will be able to write the equation of a circle.

Applying

Assessment: quiz
performance tasks
student work
unit test

Mastering - **MA.9-12.G-GPE.1** - Derive the equation of a circle of given center and radius using the Pythagorean Theorem; complete the square to find the center and radius of a circle given by an equation.

Students will be able to write a standard equation of a circle, using a center and point.

Applying

Assessment: quiz
performance tasks
student work
unit test

Mastering - **MA.9-12.G-GPE.1** - Derive the equation of a circle of given center and radius using the Pythagorean Theorem; complete the square to find the center and radius of a circle given by an equation.

Students will be able to graph a circle, given its equation.

Applying

Assessment: quiz
performance tasks
student work
unit test

Mastering - **MA.9-12.G-GPE.1** - Derive the equation of a circle of given center and radius using the Pythagorean Theorem; complete the square to find the center and radius of a circle given by an equation.

Topic: Locus: A set of points

1 Day(s)

Students will be able to describe a locus in a plane.

Applying

Assessment: quiz
performance tasks
student work
unit test

Mastering - **MA.9-12.G-GMD.4** - Identify the shapes of two-dimensional cross-sections of three-dimensional objects, and identify three-dimensional objects generated by rotations of two-dimensional objects.

Students will be able to draw a locus, given conditions

Applying

Assessment: quiz
performance tasks
student work
unit test

Mastering - **MA.9-12.G-GMD.4** - Identify the shapes of two-dimensional cross-sections of three-dimensional objects, and identify three-dimensional objects generated by rotations of two-dimensional objects.

Unit:Circles

8 Day(s)

Students will be able to describe a locus in space.

Applying

Assessment: quiz
performance tasks
student work
unit test

Mastering - **MA.9-12.G-GMD.4** - Identify the shapes of two-dimensional cross-sections of three-dimensional objects, and identify three-dimensional objects generated by rotations of two-dimensional objects.

Unit:Probability

9 Day(s)

Topic: Experimental and Theoretical probability

1 Day(s)

Students will be able to determine experimental probability.

Applying

Assessment: quiz
performance tasks
student work
unit test

Mastering - **MA.9-12.S-CP.1** - Describe events as subsets of a sample space (the set of outcomes) using characteristics (or categories) of the outcomes, or as unions, intersections, or complements of other events ("or," "and," "not").

Students will be able to calculate theoretical probability.

Applying

Assessment: quiz
performance tasks
student work
unit test

Mastering - **MA.9-12.S-CP.1** - Describe events as subsets of a sample space (the set of outcomes) using characteristics (or categories) of the outcomes, or as unions, intersections, or complements of other events ("or," "and," "not").

Students will be able to use the complements of probabilities of events.

Applying

Assessment: quiz
performance tasks
student work
unit test

Mastering - **MA.9-12.S-CP.1** - Describe events as subsets of a sample space (the set of outcomes) using characteristics (or categories) of the outcomes, or as unions, intersections, or complements of other events ("or," "and," "not").

Topic: Probability Distributions and Frequency Tables

1 Day(s)

Students will be able to find relative frequencies

Applying

Assessment: quiz
performance tasks
student work
unit test

Mastering - **MA.9-12.S-CP.4** - Construct and interpret two-way frequency tables of data when two categories are associated with each object being classified. Use the two-way table as a sample space to decide if events are independent and to approximate conditional probabilities.

Students will be able to calculate probability, using relative frequencies

Applying

Assessment: quiz
performance tasks
student work
unit test

Mastering - **MA.9-12.S-CP.4** - Construct and interpret two-way frequency tables of data when two categories are associated with each object being classified. Use the two-way table as a sample space to decide if events are independent and to approximate conditional probabilities.

Unit: Probability

9 Day(s)

Students will be able to find a probability distribution.

Applying

Assessment: quiz
performance tasks
student work
unit test

Mastering - **MA.9-12.S-CP.4** - Construct and interpret two-way frequency tables of data when two categories are associated with each object being classified. Use the two-way table as a sample space to decide if events are independent and to approximate conditional probabilities.

Topic: Permutations and Combinations

1 Day(s)

Students will be able to use the fundamental counting principle.

Applying

Assessment: quiz
performance tasks
student work
unit test

Mastering - **MA.9-12.S-CP.9** - Use permutations and combinations to compute probabilities of compound events and solve

Students will be able to find permutations.

Applying

Assessment: quiz
performance tasks
student work
unit test

Mastering - **MA.9-12.S-CP.9** - Use permutations and combinations to compute probabilities of compound events and solve

Students will be able to find a permutation.

Applying

Assessment: quiz
performance tasks
student work
unit test

Mastering - **MA.9-12.S-CP.9** - Use permutations and combinations to compute probabilities of compound events and solve

Students will be able to use the Combination Formula.

Applying

Assessment: quiz
performance tasks
student work
unit test

Mastering - **MA.9-12.S-CP.9** - Use permutations and combinations to compute probabilities of compound events and solve

Students will be able to identify combinations and permutations in a real-world situation.

Applying

Assessment: quiz
performance tasks
student work
unit test

Mastering - **MA.9-12.S-CP.9** - Use permutations and combinations to compute probabilities of compound events and solve

Students will be able to find probabilities of permutations and combinations.

Applying

Assessment: quiz
performance tasks
student work
unit test

Mastering - **MA.9-12.S-CP.9** - Use permutations and combinations to compute probabilities of compound events and solve

Topic: Compound Probability

1 Day(s)

Students will be able to identify dependent and independent events.

Applying

Assessment: quiz
performance tasks
student work
unit test

Unit: Probability

9 Day(s)

Introducing - **MA.9-12.S-CP.7** - Apply the Addition Rule, $P(A \text{ or } B) = P(A) + P(B) - P(A \text{ and } B)$, and interpret the answer in terms of the model.

Students will be able to find the probability of independent events.

Applying

Assessment: quiz
performance tasks
student work
unit test

Mastering - **MA.9-12.S-CP.7** - Apply the Addition Rule, $P(A \text{ or } B) = P(A) + P(B) - P(A \text{ and } B)$, and interpret the answer in terms of the model.

Students will be able to find the probabilities of mutually exclusive events

Applying

Assessment: quiz
performance tasks
student work
unit test

Mastering - **MA.9-12.S-CP.7** - Apply the Addition Rule, $P(A \text{ or } B) = P(A) + P(B) - P(A \text{ and } B)$, and interpret the answer in terms of the model.

Students will be able to find the probabilities of overlapping events.

Applying

Assessment: quiz
performance tasks
student work
unit test

Mastering - **MA.9-12.S-CP.7** - Apply the Addition Rule, $P(A \text{ or } B) = P(A) + P(B) - P(A \text{ and } B)$, and interpret the answer in terms of the model.

Topic: Probability Models

1 Day(s)

Students will be able to use a two-way frequency table

Applying

Assessment: quiz
performance tasks
student work
unit test

Mastering - **MA.9-12.S-CP.4** - Construct and interpret two-way frequency tables of data when two categories are associated with each object being classified. Use the two-way table as a sample space to decide if events are independent and to approximate conditional probabilities.

Students will be able to find conditional probability.

Applying

Assessment: quiz
performance tasks
student work
unit test

Mastering - **MA.9-12.S-CP.4** - Construct and interpret two-way frequency tables of data when two categories are associated with each object being classified. Use the two-way table as a sample space to decide if events are independent and to approximate conditional probabilities.

Students will be able to find probability, using relative frequencies.

Applying

Assessment: quiz
performance tasks
student work
unit test

Mastering - **MA.9-12.S-CP.4** - Construct and interpret two-way frequency tables of data when two categories are associated with each object being classified. Use the two-way table as a sample space to decide if events are independent and to approximate conditional probabilities.

Topic: Conditional probability formulas

1 Day(s)

Unit: Probability

9 Day(s)

Students will be able to use conditional probabilities

Assessment: quiz
performance task
student work
unit test

Mastering - **MA.9-12.S-CP.3** - Understand the conditional probability of A given B as $P(A \text{ and } B)/P(B)$, and interpret independence of A and B as saying that the conditional probability of A given B is the same as the probability of A, and the conditional probability of B given A is the same as the probability of B.

Mastering - **MA.9-12.S-CP.5** - Recognize and explain the concepts of conditional probability and independence in everyday language and everyday situations.

Students will be able to compare conditional probabilities

Assessment: quiz
performance task
student work
unit test

Mastering - **MA.9-12.S-CP.3** - Understand the conditional probability of A given B as $P(A \text{ and } B)/P(B)$, and interpret independence of A and B as saying that the conditional probability of A given B is the same as the probability of A, and the conditional probability of B given A is the same as the probability of B.

Mastering - **MA.9-12.S-CP.5** - Recognize and explain the concepts of conditional probability and independence in everyday language and everyday situations.

Students will be able to use tree diagrams.

Assessment: quiz
performance task
student work
unit test

Mastering - **MA.9-12.S-CP.3** - Understand the conditional probability of A given B as $P(A \text{ and } B)/P(B)$, and interpret independence of A and B as saying that the conditional probability of A given B is the same as the probability of A, and the conditional probability of B given A is the same as the probability of B.

Mastering - **MA.9-12.S-CP.5** - Recognize and explain the concepts of conditional probability and independence in everyday language and everyday situations.

Topic: Modeling Randomness

1 Day(s)

Students will be able to make random selections.

Applying
Assessment: quiz
performance task
student work
unit test

Mastering - **MA.9-12.S-MD.6** - Use probabilities to make fair decisions (e.g., drawing by lots, using a random number generator).

Mastering - **MA.9-12.S-MD.7** - Analyze decisions and strategies using probability concepts (e.g., product testing, medical testing, pulling a hockey goalie at the end of a game).

Students will be able to make a simulation

Assessment: quiz
performance task
student work
unit test

Mastering - **MA.9-12.S-MD.6** - Use probabilities to make fair decisions (e.g., drawing by lots, using a random number generator).

Mastering - **MA.9-12.S-MD.7** - Analyze decisions and strategies using probability concepts (e.g., product testing, medical testing, pulling a hockey goalie at the end of a game).

Students will be able to calculate an expected value from a random model.

Assessment: quiz
performance task
student work
unit test

Mastering - **MA.9-12.S-MD.6** - Use probabilities to make fair decisions (e.g., drawing by lots, using a random number generator).

Mastering - **MA.9-12.S-MD.7** - Analyze decisions and strategies using probability concepts (e.g., product testing, medical testing, pulling a hockey goalie at the end of a game).