

PLEASANT HOPE R-6
GEOMETRY CURRICULUM MAPPING PACING GUIDE

Timing	August	September	September
Unit Titles	Basics of Geometry	Reasoning and Proof	Perpendicular and Parallel Lines
Essential Questions	1.1 How are shapes formed? 1.2 Use inductive reasoning to determine the product of an even number and an odd number, explain why? 1.3 Think of the walls of a classroom. Explain how you can illustrate possible intersections of one, two, and three dimensional objects? 1.4 Use a problem-solving plan to create a real-life problem involving triangles to solve for its area? 1.5 Explain why patterns are predictable and are there patterns that are unpredictable?	2.1 Develop a hypothesis in if-then form. Rethink the converse, inverse, and contrapositive of that hypothesis and determine its truth or falsity. 2.2 Develop a hypothesis in biconditional format 2.3 Develop a logical argument about the price of oil that uses the law of detachment and the law of syllogism 2.4 Develop geometric sketches of algebraic properties. 2.5 Can you develop a real-life two-column proof and explain the steps towards conclusion of the proof 2.6 Why is symmetry important in geometry. 2.7 Is a logical statement valid 2.8 Use properties of Algebra to determine an athlete's target heart rate. 2.9 Determine which angles are congruent in the framing of a house.	3.1 Describe the Lines and Planes involved in an escalator 3.2 How many angles of a window frame do you need to measure 3.3 Show two different ways of proving the same concept. 3.4 Understand the world around you, such as how rainbows are formed. 3.5 Solve real-life problems, such as predicting paths of a sailboat 3.6 Analyze light passing through a glass and explain the relationships between transversals and parallel lines. 3.7 Why do parallel lines have the same slope. 3.8 Find the shortest distance to a particular point in your travels.
Content	Inductive Reasoning, Patterns, Segments, Angles, Bisectors, Angle Pairs, Perimeter, Circumference, and Area	Deductive Reasoning, Conditional and Biconditional Statements, Proving Statements about Segments and Angles	Concepts of Parallelism and Perpendicularity, Angle Pairs formed by Parallel Lines and Transversals. Find Slopes in the Coordinate Plane
Skills	1.1 Draw representations of segments, lines, angles. 1.2 Infer relationships between angle pairs and determine which kind they are. 1.3 Determine the distance of a segment. 1.4 Use the Pythagorean Theorem to determine lengths in a triangle 1.5 Locate the midpoint of a segment 1.6 Differentiate between vertical angles, linear pair angles, complementary angles, supplementary angles 1.7 Determine Perimeter, Circumference, and Area of Square, Rectangle, Triangles, and Circles	2.1 Understand properties of points, lines, and planes 2.2 Write statements in if then form and determine their truth and falsity 2.3 Find a solution through deductive reasoning and determine how it differs from inductive reasoning. 2.4 Know the algebraic properties of equality 2.5 Write a two-column proof 2.6 Understand properties of Angle Congruence	3.1 Identify Relationships between Lines. 3.2 Identify angles formed by transversals. 3.3 Write different types of proof. 3.4 Prove results about perpendicular and parallel lines. 3.5 Solve real life problems using parallel and perpendicular lines. 3.6 Determine Slopes of lines. 3.7 Write the equations of parallel and perpendicular lines in slope-intercept form.
Assessments	Daily Homework Checks, Quizzes, and Chapter Tests	Daily Homework Checks, Quizzes, and Chapter Tests	Daily Homework Checks, Quizzes, and Chapter Tests
Activities/Resources	Textbook, Notes, Powerpoints, Graphing Utility, Class Discussion	Textbook, Notes, Powerpoints, Graphing Utility, Class Discussion	Textbook, Notes, Powerpoints, Graphing Utility, Class Discussion

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Timing	October	October/November	November/December
Unit Titles	Congruent Triangles	Properties of Triangles	Quadrilaterals
Essential Questions	<p>4.1 Explain how to find angles in triangular objects, such as fences, decks, framing of a house, etc.</p> <p>4.2 Analyze patterns in a folded piece of paper and explain the congruency between the folds that develop the pattern.</p> <p>4.3 Explain why triangles are used as structural support for buildings</p> <p>4.4 Explain how triangle properties are used in surveying.</p> <p>4.5 Explain how all right triangles are congruent.</p> <p>4.6 Explain why reflection is important in triangle congruence.</p>	<p>5.1 Explain where the best position a goalie should be at in relation to the ball in a soccer or hockey game.</p> <p>5.2 Explain how to find the center of any circle.</p> <p>5.3 Determine the length of a crossbar in a swing set.</p> <p>5.4 Explain how the lengths of the cables on a crane would affect the person of the boom of the crane.</p> <p>5.5 Decide which of two boats is further from the dock.</p> <p>5.6 Triangulate three towns on a map to determine which towns are the farthest apart.</p>	<p>6.1 Find the unknown measure in a four sided convex polygon</p> <p>6.2 Explain the best use of space based on spacing of objects.</p> <p>6.3 Explain how to frame a rectangular square.</p> <p>6.4 Draw conclusions about real-life geometric figures such as a house.</p> <p>6.5 Describe the relationships in a tent and how they relate to quadrilateral figures</p> <p>6.6 Find the areas of large surfaces, such as roadways, roofs.</p> <p>6.7 Explain how a real-life picture can be set to a coordinate plane and its quadrilateral properties shown more easily.</p>
Content	<p>Triangles and Angles, Congruent Triangles, Methods of Proving Triangles Congruent, Coordinate Proofs of Triangle Congruence</p>	<p>Perpendicular Bisectors, Angle Bisectors, Medians and Altitudes of Triangles. Midsegments of a triangle, Indirect Proofs. Hinge theorem.</p>	<p>Polygons and their parts, Properties of Parallelograms, Types of Quadrilaterals based on their Sides and Angles, Quadrilateral Hierarchy, Areas of Quasdrilaterals</p>
Skills	<p>4.1 Classify Triangles by their sides and angles</p> <p>4.2 Classify angle measures in triangles</p> <p>4.3 Identify congruent figures and corresponding parts</p> <p>4.4 Prove two triangles are congruent</p> <p>4.5 Use congruence in real-life situations</p> <p>4.6 Use congruent triangles to plan and write proofs.</p> <p>4.7 Use properties of right, isosceles, and equilateral</p> <p>4.8 Use geometric figures to write a coordinate proof.</p>	<p>5.1 Understand properties of perpendicular and angle bisectors.</p> <p>5.2 Use properties of perpendicular bisectors and angle bisectors in a triangle</p> <p>5.3 Use properties of medians and altitudes of a triangle.</p> <p>5.4 Identify midsegments and the properties that they have in triangle.</p> <p>5.5 Use Triangle Inequalities and known measurements to determine lengths and angles that are largest and smallest in a triangle.</p> <p>5.6 Read and write an indirect proof.</p>	<p>6.1 Identify, name, and describe polygons</p> <p>6.2 Sums of the measures of the interior angles of a quadrilateral</p> <p>6.3 Learn properties of parallelograms</p> <p>6.4 Prove that a quadrilateral is a parallelogram</p> <p>6.5 Use properties of angles, sides, and diagonals of rhombuses, rectangles, and squares</p> <p>6.6 Use properties of trapezoids and kites</p> <p>6.7 Find areas of all types of quadrilaterals</p>
Assessments	<p>Daily Homework Checks, Quizzes, and Chapter Tests</p>	<p>Daily Homework Checks, Quizzes, and Chapter Tests</p>	<p>Daily Homework Checks, Quizzes, and Chapter Tests</p>
Activities/Resources	<p>Textbook, Notes, Powerpoints, Graphing Utility, Class Discussion</p>	<p>Textbook, Notes, Powerpoints, Graphing Utility, Class Discussion</p>	<p>Textbook, Notes, Powerpoints, Graphing Utility, Class Discussion</p>

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Timing	December/January	January	January/February
Unit Titles			
Essential Questions	<p>7.1. Explain how the same pattern repeated over and over again can develop a completely different image than the original figure.</p> <p>7.2. Show where a telephone pole should be placed to minimize the length of a cable</p> <p>7.3. Explain how the use of mirrors is used in the function of a kaleidoscope</p> <p>7.4. How can symmetry be used to design a logo.</p> <p>7.5. Describe the path of a kite through the use of vectors</p> <p>7.6. Identify the frieze patterns in pottery.</p>	<p>8.1. What is the winning ratio of a baseball's teams wins and losses?</p> <p>8.2. Can you determine the actual size of something from looking at a miniature model of that object?</p> <p>8.3. Determine if two signs are proportional or similar?</p> <p>8.4. Can you determine the altitude of a plane by using similar triangles.</p> <p>8.5. Determine the height of a building through the use of its shadow length.</p>	<p>Right Triangles and Trigonometry</p> <p>9.1. Can you determine the height of a roof using right triangles</p> <p>9.2. Determine the length of a support beam in a structure?</p> <p>9.3. Can you measure distances indirectly, such as the crater of a moon?</p> <p>9.4. Find the angle of depression of an airplane and its current height based on where you are standing?</p> <p>9.5. Describe physical quantities, such as the speed and direction of a ship?</p> <p>9.6. Can you model real-life motion such as the path of a skydiver?</p>
Content	<p>Reflections, Rotations, Translations, Vectors, Glide Reflections, Compositions, Frieze Patterns</p>	<p>Ratio and Proportion, Similar Polygons and Triangles, Dilations</p>	<p>Right Triangles, Geometric Mean, Pythagorean Theorem, 30-60-90 and 45-45-90 right triangles, Trigonometric Ratios, Vectors</p>
Skills	<p>7.1. Identify the three basic rigid transformations</p> <p>7.2. Identify and use reflections in a plane</p> <p>7.3. Identify relationships between reflections and line symmetry.</p> <p>7.4. Identify rotations in a plane</p> <p>7.5. Use rotational symmetry and reflections in real-life situations</p> <p>7.6. Identify and use translations in the plane</p> <p>7.7. Use vectors in real-life situations</p> <p>7.8. Identify glide reflections in a plane</p> <p>7.9. Represent transformations as compositions of simpler transformations</p> <p>7.10. Use transformations to classify and identify frieze patterns in real-life.</p>	<p>8.1. Find and simplify the ratio of two numbers</p> <p>8.2. Use proportions to solve real-life problems</p> <p>8.3. Identify similar polygons</p> <p>8.4. Identify similar triangles</p> <p>8.5. Use similarity theorems to prove that two triangles are similar</p> <p>8.6. Use proportionality theorems to calculate segment lengths</p> <p>8.7. Identify Dilations</p> <p>8.8. Create real-life perspective drawings using dilations, proportionality, and similarity</p>	<p>9.1. Solve problems involving similar right triangles formed by the altitude drawn to the hypotenuse of a right triangle using geometric means</p> <p>9.2. Prove the Pythagorean Theorem</p> <p>9.3. Use side lengths to classify triangles by their angle measures</p> <p>9.4. Find side lengths of special right triangles</p> <p>9.5. Find the sine, cosine, and tangent of an acute triangle</p> <p>9.6. Solve the missing parts of a right triangle</p> <p>9.7. Find the magnitude and direction of a vector.</p> <p>9.8. Add vectors</p> <p>9.9. Use Converse of Pythagorean Theorem to solve problems</p>
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Timing	March	March/April	April/May
Unit Titles	Circles	Area of Polygons and Circles	Surface Area and Volume
Essential Questions	<p>10.1 Can you find the radius of a grain bin given the distance around it?</p> <p>10.2 Can you use circles to triangulate the location of a cell phone from three cell phone towers?</p> <p>10.3 Determine your angle of elevation to the top of a mountain given your viewing angle?</p> <p>10.4 Can you determine the distance you can travel while still maintaining contact with a radio station's signal?</p> <p>10.5 By viewing the beacon from a lighthouse or air traffic control tower can you determine how far away you are from the landing area?</p> <p>10.6 Using the curvature of the earth and the height of a hot-air balloon, determine the maximum distance from which it can be seen?</p>	<p>11.1 Find the measures of angles of polygons that exist in real-life, such as a maze or mini-golf course?</p> <p>11.2 Find the areas of polygons that exist in real-life such as pentagonal mirrors, octagonal decks, etc?</p> <p>11.3 Find the area of a piece of pizza if you know it is cut into 12 pieces and has a diameter of 16 inches?</p> <p>11.4 Find the areas that exist in semicircular regions or curved regions, such as a baseball outfield.</p> <p>11.5 What is the probability that you will hit a part of a target based on the randomness of the throw?</p>	<p>12.1 Can you determine the amount of water needed to fill an aquarium?</p> <p>12.2 Find the area of each lateral face of the Egyptian pyramids?</p> <p>12.3 Estimate the volume of Mt. St. Helens?</p> <p>12.4 Use the scale factor of a model car to determine the dimensions of the actual vehicle?</p> <p>12.5 Determine the surface area of Mars, or some other planet?</p>
Content	Circles, Tangents, Chords, Secants, Arc Measure, Arc Length, Inscribed Angles, Angle Relationships in Circles, Circle Equations, Segment Lengths in Circles	Angles of Polygons, Areas of Polygons, Perimeters and Areas of Similar Figures, Circumference, Arc Length, Areas of Circles and their Sectors, Geometric Probabilities	Solids, Surface Areas, Volumes, Similarity
Skills	<p>10.1 Identify segments and lines related to circles</p> <p>10.2 Use properties of chords, tangents, and arcs of circles</p> <p>10.3 Use inscribed angles and polygons to solve problems</p> <p>10.4 Use angles formed by tangents and chords and lines that intersect a circle to solve problems</p> <p>10.5 Find lengths of segments, chords, tangents, and secants</p> <p>10.6 Write the equation of a circle and use it to solve problems</p> <p>10.7 Draw the locus of points that satisfy one or more conditions</p>	<p>11.1 Find the interior and exterior angles of polygons.</p> <p>11.2 Find the areas of regular polygons</p> <p>11.3 Find the perimeters and areas of similar figures and use them to solve real-life problems</p> <p>11.4 Find the circumference of a circle and lengths of arcs to solve problems.</p> <p>11.5 Find the area of a sector of a circle.</p> <p>11.6 Understand Geometric probability and know when to use it.</p>	<p>12.1 Use polyhedral properties and Euler's theorem</p> <p>12.2 Find the surface areas and volumes of prisms, cylinders, pyramids, and cones</p> <p>12.3 Find surface areas and volumes of spheres.</p> <p>12.4 Find and use scale factors and the fundamental theorem of similarity in similar solids in regards to their lengths, areas, and volumes.</p>
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