

	Units of Study	Suggested Timeframe	Unit Focus Priority Standards/ Enduring Understandings
1st Grading Cycle	Conditional Probability & Independent Events	12 single block days/ 6 double block days	<p>Students will understand that in living our lives we are always taking on risks and exposing ourselves to danger. We try things we think will succeed but are uncertain. Students will learn how probability theory provides a way to improve decision making, helping to manage risk and anticipate outcomes.</p> <ul style="list-style-type: none"><li>• <b>G.13C Identify whether two events are independent and compute the probability of the two events occurring together with or without replacement. (Priority Standard)</b></li><li>• <b>G.13D Apply conditional probability in contextual problems. (Priority Standard)</b></li></ul>
	Geometric Figures and Basic Reasoning	12 single block days/ 6 double block days	<p>Students will understand and use formal definitions of basic figures, the axiomatic system of Geometry, and the basics of logical reasoning to develop the idea of mathematical proofs.</p> <ul style="list-style-type: none"><li>• <b>G.4B Identify and determine the validity of the converse, inverse, and contrapositive of a conditional statement and recognize the connection between a biconditional statement and a true conditional statement with a true converse. (Priority Standard)</b></li><li>• <b>G.4C Verify that a conjecture is false using a counterexample. (Priority Standard):</b></li></ul>
	Distance, Midpoint, and Angle Measurement	12 single block days/ 6 double block days	<p>Students will understand how length and angle measures can be described through the lenses of construction, Euclidean geometry, and analytical geometry.</p> <ul style="list-style-type: none"><li>• <b>G.2B Derive and use the distance, <del>slope</del>, and midpoint formulas to verify geometric relationships, including congruence of segments <del>and parallelism or perpendicularity of pairs of lines</del>. (Priority Standard)</b></li><li>• <b>G.5C Use the constructions of congruent segments, congruent angles, angle bisectors, and perpendicular bisectors to make conjectures about geometric relationships.(Priority Standard):</b></li></ul>
2nd Grading Cycle	Parallel Lines, Perpendicular Lines, and Angle Relationships	12 single block days/ 6 double block days	<p>Students will use Euclidean and algebraic reasoning to extend and explore practical applications of geometric figures including parallel and perpendicular lines.</p> <ul style="list-style-type: none"><li>• <b>G.2B Derive and use the <del>distance</del>, slope, and <del>midpoint</del> formulas to verify geometric relationships,<del>including congruence of segments</del> and parallelism or perpendicularity of pairs of lines. (Priority Standard)</b></li><li>• <b>G.2C Determine an equation of a line parallel or perpendicular to a given line that passes through a given point. (Priority Standard)</b></li><li>• <b>G.6A Verify theorems about angles formed by the intersection of lines and line segments, including vertical angles, and angles formed by parallel lines cut by a transversal <del>and prove equidistance between the endpoints of a segment and points on its perpendicular bisector</del> and apply these relationships to solve problems. (Priority Standard):</b></li></ul>
	Rigid Transformations	10 single block days/ 5 double block days	<p>Students will use the exploration of rigid transformations to develop an understanding of congruence and how it preserves the geometric properties of the pre-image.</p> <ul style="list-style-type: none"><li>• <b>G.3B Determine the image or preimage of a given two-dimensional figure under a composition of rigid transformations, a composition of non-rigid transformations, and a composition of both, including dilations where the center can be any point in the plane. (Priority Standard)</b></li><li>• <b>G.6A Verify theorems about angles formed by the intersection of lines and line segments, including vertical angles, and angles formed by parallel lines cut by a transversal <del>and prove equidistance between the endpoints of a segment and points on its perpendicular bisector</del> and apply these relationships to solve problems. (Priority Standard)</b></li></ul>
	Congruence, Triangles, and Proofs	10 single block days/ 5 double block days	<p>Students will understand how rigid transformations provide the basis for studying and proving congruence of triangles within the Euclidean system of geometry.</p> <ul style="list-style-type: none"><li>• <b>G.6B Prove two triangles are congruent by applying the Side-Angle-Side, Angle-Side Angle, Side- Side-Side, Angle-Angle-Side, and Hypotenuse- Leg congruence conditions. (Priority Standard)</b></li></ul>
Ongoing Standards			
<p>(A) The student is expected to apply mathematics to problems in everyday life, society, and the workplace.</p> <p>(B) The student is expected to use a problem-solving model that incorporates analyzing given information, formulating a plan or strategy, determining a solution, justifying the solution and evaluating the problem-solving process and the reasonableness of the solution.</p> <p>(C) The student is expected to select tools, including real objects, manipulatives, paper and pencil, and technology as appropriate, and techniques, including mental math, estimation, and number sense as appropriate, to solve problems.</p> <p>(D) The student is expected to communicate mathematical ideas, reasoning, and their implications using multiple representations, including symbols, diagrams, graphs, and language as appropriate.</p> <p>(E) The student is expected to create and use representations to organize, record, and communicate mathematical ideas.</p> <p>(F) The student is expected to analyze mathematical relationships to connect and communicate mathematical ideas.</p> <p>(G) The student is expected to display, explain, and justify mathematical ideas and arguments using precise mathematical language in written or oral communication.</p>			

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3rd Grading Cycle	Properties of Triangles	10 single block days/ 5 double block days	<p>Students will discover and prove the properties of triangles to solidify their understanding of relationships of segments and angles in triangles. They will understand how the properties of triangles form the basis for understanding polygons.</p> <ul style="list-style-type: none"> <li>• <b>G.5C Use the constructions of congruent segments, congruent angles, angle bisectors, and perpendicular bisectors to make conjectures about geometric relationships.(Priority Standard)</b></li> <li>• <b>G.6D Verify theorems about the relationships in triangles, <del>including proof of the Pythagorean Theorem</del>, the sum of interior angles, base angles of isosceles triangles, midsegments, and medians, and apply these relationships to solve problems. (Priority Standard):</b></li> </ul>
	Quadrilaterals	10 single block days/ 5 double block days	<p>Students will discover and prove the properties of quadrilaterals using angles and sides. They will apply these relationships to solve problems in contexts such as architecture and design.</p> <ul style="list-style-type: none"> <li>• <b>G.6D Verify theorems about the relationships in triangles, <del>including proof of the Pythagorean Theorem</del>, the sum of interior angles, <del>base angles of isosceles triangles, midsegments, and medians</del>, and apply these relationships to solve problems. (Priority Standard)</b></li> <li>• <b>G.6E Prove a quadrilateral is a parallelogram, rectangle, square, or rhombus using opposite sides, opposite angles, or diagonals and apply these relationships to solve problems. (Priority Standard):</b></li> </ul>
	Similarity in Polygons and Geometric Mean	12 single block days/ 6 double block days	<p>Students will understand how dilations provide the basis for studying and proving similarity of triangles, including other polygons, resulting in measurement relationships that can be extended to practical applications of geometric figures.</p> <ul style="list-style-type: none"> <li>• <b>G.3B Determine the image or preimage of a given two-dimensional figure under <del>a composition of rigid transformations</del>, a composition of non-rigid transformations, and <del>a composition of both</del>, including dilations where the center can be any point in the plane. (Priority Standard)</b></li> <li>• <b>G.7A Apply the definition of similarity in terms of a dilation to identify similar figures and their proportional sides and the congruent corresponding angles. (Priority Standard)</b></li> <li>• <b>G.7B Apply the Angle-Angle criterion to verify similar triangles and apply the proportionality of the corresponding sides to solve problems. (Priority Standard):</b></li> </ul>
	Pythagorean Theorem, Special Right Triangles, and Trig Ratios	12 single block days/ 6 double block days	<p>Students will understand that there are various ways to solve right triangle problems beyond the Pythagorean Theorem.</p> <ul style="list-style-type: none"> <li>• <b>G.6D Verify theorems about the relationships in triangles, including proof of the Pythagorean Theorem, <del>the sum of interior angles, base angles of isosceles triangles, midsegments, and medians</del>, and apply these relationships to solve problems. (Priority Standard)</b></li> <li>• <b>G.9A Determine the lengths of sides and measures of angles in a right triangle by applying the trigonometric ratios sine, cosine, and tangent to solve problems. (Priority Standard)</b></li> <li>• <b>G.9B Apply the relationships in special right triangles 30°-60°-90° and 45°-45°-90° and the Pythagorean theorem, including Pythagorean triples, to solve problems. (Priority Standard):</b></li> </ul>
4th Grading Cycle	Equations and Properties of Circles	10 single block days/ 5 double block days	<p>Students will understand that circles in the Euclidean plane are defined as the locus of points that is a given distance from a fixed point. Within that plane, they will explore the lines that intersect the circle, creating different angle and length relationships. Students will learn how to use these relationships (and the theorems they define) to solve problems.</p> <ul style="list-style-type: none"> <li>• <b>G.12A Apply theorems about circles, including relationships among angles, radii, chords, tangents, and secants, to solve non-contextual problems. (Priority Standard):</b></li> </ul>
	Area, Perimeter, and Angle Measures of Polygons and Circles	12 single block days/ 6 double block days	<p>Students will understand that while the perimeter of a figure is the distance around the figure, the area is the number of square units enclosed by the figure regardless of the shape. Students will learn how some two dimensional shapes have multiple pathways to determine perimeter or area.</p> <ul style="list-style-type: none"> <li>• <b>G.11B Determine the area of composite two-dimensional figures composed of a combination of triangles, parallelograms, trapezoids, kites, regular polygons, or sectors of circles to solve problems using appropriate units of measure. (Priority Standard)</b></li> <li>• <b>G.12C Apply the proportional relationship between the measure of the area of a sector of a circle and the area of the circle to solve problems. (Priority Standard):</b></li> </ul>
	Surface Area, Volume, and Changing Dimensions	12 single block days/ 6 double block days	<p>Students will understand how three-dimensional shapes can be described in terms of volume (three dimensional) or surface area (two dimensional), or the cross sections created when intersected by a plane. They will learn how changing dimensions of a geometric figure have the potential to change its volume and surface area.</p> <ul style="list-style-type: none"> <li>• <b>G.10B Determine and describe how changes in the linear dimensions of a shape affect its perimeter, area, surface area, or volume, including proportional and non-proportional dimensional change. (Priority Standard)</b></li> <li>• <b>G.11C Apply the formulas for the total and lateral surface area of three-dimensional figures, including prisms, pyramids, cones, cylinders, spheres, and composite figures, to solve problems using appropriate units of measure. (Priority Standard):</b></li> </ul>
<p><i>Ongoing Standards</i></p> <p>(A) The student is expected to apply mathematics to problems in everyday life, society, and the workplace.</p> <p>(B) The student is expected to use a problem-solving model that incorporates analyzing given information, formulating a plan or strategy, determining a solution, justifying the solution and evaluating the problem-solving process and the reasonableness of the solution.</p> <p>(C) The student is expected to select tools, including real objects, manipulatives, paper and pencil, and technology as appropriate, and techniques, including mental math, estimation, and number sense as appropriate, to solve problems.</p> <p>(D) The student is expected to communicate mathematical ideas, reasoning, and their implications using multiple representations, including symbols, diagrams, graphs, and language as appropriate.</p> <p>(E) The student is expected to create and use representations to organize, record, and communicate mathematical ideas.</p> <p>(F) The student is expected to analyze mathematical relationships to connect and communicate mathematical ideas.</p> <p>(G) The student is expected to display, explain, and justify mathematical ideas and arguments using precise mathematical language in written or oral communication.</p>			