

**MATH CURRICULUM SUMMARY – GRADES 9-12**

**Points, Lines, Planes, and Angles**

- Define terms
- Find lengths of segments using distance formula
- Find measures of angles formed by intersecting lines
- Find measures of angles using angle addition
- Find coordinates of the midpoint

**Deductive Reasoning**

- Inductive and deductive reasoning
- Identify parts of conditional statements
- Justify statements with properties of algebra
- Solve for variable in problems involving complements, supplements, vertical angles, and linear pairs.
- Construct arguments for propositions involving angles and segments

**Parallel and Perpendicular Lines**

- Define terms with parallel and perpendicular lines
- Utilize properties of parallel and perpendicular lines to construct arguments and solve problems
- Construct arguments to prove lines are parallel or perpendicular
- Find slopes of parallel and perpendicular lines and find equations of these lines.
- Solve equations involving lines including systems of equations and inequalities both algebraically and graphically.

**Probability**

- Compare odds and probability
- Find theoretical and experimental probabilities of independent simple events
- Apply counting principles to probability
- Determine probability using length, area, and volume

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<b>Congruent Triangles</b>
<ul style="list-style-type: none"><li>• <b>Identify the types of triangles in terms of sides and angles.</b></li><li>• <b>Use properties of angles and sides in a triangle.</b></li><li>• Define and utilize terms with congruent figures, isosceles triangles, medians, altitude and perpendicular bisectors.</li><li>• Prove triangles congruent</li><li>• Use congruent triangles to prove parts congruent</li></ul>

<b>Quadrilaterals</b>
<ul style="list-style-type: none"><li>• Properties of regular polygons</li><li>• Utilize properties of parallelograms, trapezoids, and kites to solve for variables.</li><li>• Construct arguments to show a quadrilateral is a parallelogram.</li><li>• Find angles of polygons</li><li>• Define terms with special quadrilaterals and their parts</li></ul>

<b>Similar Polygons</b>
<ul style="list-style-type: none"><li>• Use terms with similar polygons and scale factor to find lengths of sides and angles of a triangle.</li><li>• Simplify ratios</li><li>• Solve proportions</li><li>• Solve problems with ratios and proportions</li><li>• Probe triangles similar</li></ul>

<b>Right Triangles</b>
<ul style="list-style-type: none"><li>• Apply Pythagorean theorem and special right triangles to find missing sides of a right triangle.</li><li>• Use the converse of Pythagorean theorem to determine if a triangle is acute, right, or obtuse.</li><li>• Apply trigonometric ratios to solve problems.</li></ul>

<b>Circles</b>
<ul style="list-style-type: none"><li>• Know basic terms and properties with circles</li><li>• Find arcs and chords</li><li>• Find inscribed angles</li><li>• Find other types of angles in relation to a circle by applying formulas</li><li>• Find lengths of segments in relation to a circle by applying theorems.</li><li>• Write and graph equations of circles.</li></ul>

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<b>Area</b>
<ul style="list-style-type: none"><li>• Applying area formulas, find the area of rectangles, parallelograms, triangles, rhombi, trapezoids, kites, and regular polygons</li><li>• Maximize area of a figure given a perimeter.</li><li>• Compute area and circumference of circles</li><li>• Find arc lengths and area of sectors</li></ul>

<b>Surface Area and Volume of Solids</b>
<ul style="list-style-type: none"><li>• Identify different polyhedra</li><li>• Find lateral area, surface area, and volume of prisms, pyramids, cylinders, cones, and spheres.</li><li>• Find the scale factor of similar solids and plane figures.</li></ul>

Instructional strategies include: cooperative learning groups, integration of technology, mini-lecture, concrete materials, guided practices, independent practice.