



Mount Pleasant Central School District

Principles of Algebra & Geometry, Math

We believe that students should learn the mathematical practice standards by showing the connections between real world problems and mathematical solutions by modeling, explorations and discovery.

How can learned algebraic skills better help us understand graphed forms and geometric shapes? In this class, students will focus on strengthening algebraic skills and learning how algebraic concepts can be applied to graphs and spatial reasoning. Our main goal is to strengthen fundamental algebra skills such as polynomials, rational expressions, factoring, solutions of linear and quadratic equations, functions, exponential equations, systems of linear equations, and trigonometry. We emphasize learning these skills in a way that not only will allow students to answer materials but also be prepared to apply them to future classes in the scope and sequence. Assessment will primarily be through summative assessments.

Unit Title	Month	Content	Vocabulary	Standards	Skills	Big Ideas	Assessments
Algebra Basics	September	Structure of a line, equation of a line, vertical and horizontal lines, and identifying slope	Slope (Positive, Negative, undefined, and zero slope)	Interpret the structure of expressions (AI.A.SSE)	To identify and find the slope of a line	Understanding the components of a term is the building block of algebra	Exam
Linear Equations	October	Writing an equation of a line, linear regression, parallel and perpendicular lines, solving systems of equations graphically and algebraically	Y-intercept Parallel and perpendicular lines	Solve equations and inequalities in one variable. (AI-A.REI)	Learning how to identify slopes and y-intercepts, and how to use that in solving equations of a line	Students can use an inequality to describe a real-life statement.	Exam
Quadratic Equations	December	Properties of Parabolas, graphing parabolas, factoring binomials, factoring trinomials,	Parabola Vertex Turning point	Interpret expressions for functions in terms of the situation they model (AI-F.LE)	The relationship between parabolas and factoring. Learning the different	Quadratic equations model situations with variable rates of change and can be	Exam

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		quadratic word problems. completing the square, vertex form of quadratics			ways of factoring	represented in multiple forms, each with unique insights.	
Geometry concepts	February	Area and Perimeter, Triangles and Trapezoids, Circumference and Area of a circle, Properties and definitions of quads (parallelograms, rectangles, rhombi, and trapezoids), distance formula, slope and midpoint formula, types of angles, parallel line theorems	Different types of quadrilaterals Circumference Area	Use coordinates to prove simple geometric theorems algebraically (GEO-G.GPE)	Finding slopes, distances and midpoints of a quadrilateral using each of their properties	Quadrilaterals have different properties regarding sides, angles and diagonals.	Exam

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Radicals and Trig	May	Simplifying, adding, subtracting, multiplying and dividing radicals, SOH CAH TOA (finding angle and side measurements)	Radical Sine Cosine Tangent	Define trigonometric ratios and solve problems involving right triangles (GEO-G.SRT)	How to use radicals in finding the angle and side measurements of a triangle.	Triangles have predictive properties which allow for measures of angles and distance to be calculated.	Exam