Mount Pleasant Central School District

GeometryR, 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 shapes and spaces? In this class, students will be introduced to geometric concepts such as congruence, transformations, angle pair relationships, triangles, quadrilaterals, similarity, trigonometry, area and volume, and circles. This course explores problem solving, proof, and justification. Our main goal is for students to be able to analyze and interpret information presented to them and make connections to prior knowledge learned. We emphasize developing ideas through student investigation and students are expected to apply their knowledge to open-ended and non-routine problems. Assessment is based on tests and quizzes as well as performance-based tasks where students will illustrate advanced conceptual thinking. Students will complete both formative and summative assessments, including project-based assessments.

Unit Title	Month	Content	Vocabulary	Standards	Skills	Big Ideas	Assessments
Building Blocks of Geometry	September	Understanding the vocabulary upon which the year will be built, see Vocabulary.	Point/midpoint Line Ray Segment Plane Collinear/coplanar,	Experiment with transformations in the plane. (GEO.G.CO)	Students will create and identify the geometric components used to create shapes.	Understand how points, lines, and planes are used to build other shapes in geometry.	Cumulative exam with a focus on the most recent unit. The exam has multiple-choice, free-response questions, application questions, and open-ended questions that require written explanation.
Angles	October	Angle relationships: complementary, supplementary, adjacent, vertical, angle bisector, linear pair. Parallel lines cut by a	Vertical angles, Complementary Supplementary Linear pair Adjacent Alternate interior	Experiment with transformations in the plane. (GEO.G.CO)	Students will use the properties of angles to determine the measure.	Compare and analyze angle relationships and use them to justify future shapes in geometry.	Cumulative exam with a focus on the most recent unit. The exam has multiple choice, free response questions, application

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		transversal.					questions and open ended questions which require written explanation.
Triangles	November	Show how triangles can vary but have universal truths. Congruent triangles	Isosceles Equilateral Scalene Obtuse Acute	Prove geometric theorems. (GEO.G.CO)	Students will classify triangles. Students will use properties of triangles to calculate solutions.	You can prove that two triangles are congruent without having to show that all corresponding parts are congruent.	Cumulative exam with a focus on the most recent unit. Exam has multiple choice, free response questions, application questions and open ended questions which require written explanation.
Quadrilaterals	December	Properties of quadrilaterals. Quadrilateral proofs	Quadrilateral Parallelogram/rhombus Rectangle/square	Use coordinates to prove simple geometric theorems	Students will classify quadrilaterals using both equations and	Quadrilaterals have different properties regarding sides, angles	Cumulative exam with a focus on the most recent unit. Exam has

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			Kite	algebraically. (GEO-G.GPE)	coordinate geometry.	and diagonals.	multiple choice, free response questions, application questions and open ended questions which require written explanation.
Transformations	January	Isometric transformations Non-isometric transformations	Translation Rotation Dilation Reflection Isometric	Experiment with transformations in the plane. (GEO.G.CO)	Students will show how the various transformations move objects in the coordinate plane. Students will recognize which transformations alter the make-up of the original object.	Understand how you can represent a transformation in the coordinate plane.	Cumulative exam with a focus on the most recent unit. Exam has multiple choice, free response questions, application questions and open ended questions which require written explanation.
Similarity	February	Ratios and proportions	Ratio	Understand similarity	Students will	Proportional	Cumulative exam with

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		Similarity proofs	Similarity Proportion	in terms of similarity transformations. (GEO-G.SRT)	understand that ratios and proportions have a physical representation.	relationships can be used to find measurements between similar polygons.	a focus on the most recent unit. Exam has multiple choice, free response questions, application questions and open ended questions which require written explanation.
Trigonometry	March	Special right triangles SOH CAH TOA	Law of sines Law of cosines	Define trigonometric ratios and solve problems involving right triangles. (GEO-G.SRT)	Students will understand how the properties of special right triangles can be used to find side lengths.	Triangles have predictive properties which allow for measures of angles and distance to be calculated.	Cumulative exam with a focus on the most recent unit. Exam has multiple choice, free response questions, application questions and open ended questions which require written explanation.

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Circles	May	Circles and the resulting pieces when line(s) intersect them. Equations of a circle in the coordinate plane.	Tangent Chord Arc Inscribed Circumscribed	Understand and apply theorems about circles. (GEO-G.C)	Students will use the properties of central and inscribed angles to determine arc lengths. Students will use the standard form of a circle to be represented as an equation.	When lines intersect a circle or within a circle the measures of resulting angles, arcs, and segments can be determined.	Cumulative exam with a focus on the most recent unit. Exam has multiple choice, free response questions, application questions and open ended questions which require written explanation
Area/Volume	June	Area of polygons Volume of solids	Circumference Area Perimeter Sector	Explain formulas and use them to solve. (GEO-G.GMD)	Students will use formulas to determine area/surface area. Students will use formulas to determine volume.	How do you find the area of a polygon or find the circumference and area of a circle? How do perimeters and areas of similar	Cumulative exam with a focus on the most recent unit. Exam has multiple choice, free response questions, application questions

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						polygons compare? How do you find the surface area and volume of a solid? How do the surface area and volumes of similar solids compare?	and open ended questions which require written explanation.