Mount Pleasant Central School District

GeometryH, 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 a wide variety of geometric concepts and a foundational look at trigonometry. This course explores complex problem solving, in-depth proofs, and advanced geometric concepts. We emphasize being able to analyze and interpret information presented to students and ask them to make connections to prior knowledge learned. Ideas are developed through student investigation, and students are expected to apply their knowledge to open-ended and non-routine problems. Assessment will primarily be through tests and quizzes as well as performance-based tasks where students will illustrate advanced conceptual thinking.

Unit Title	Month	Content	Vocabulary	Standards	Skills	Big Ideas	Assessments
Building Blocks of Geometry	September	*Vocabulary of points *Lines *Planes *Basic geometry	Point Line Plane Multiple variations	Experiment with transformations in the plane. (GEO.G.CO)	-Students will create & identify geometric components that are used to create diagrams and shapes.	Understand how points, lines, and planes are used to build other shapes in geometry.	The cumulative exam focused on a unit that comprised of multiple choice and free response questions.
Angles	October	*Angle relationships, including complementary, supplementary, adjacent, vertical, angle bisector, linear pair, and parallel lines cut by a transversal.	Vertical Complementary Supplementary Linear pair Adjacent Angles involving transversals	Experiment with transformations in the plane. (GEO.G.CO)	-Students will use properties of angles to determine measure.	Compare and analyze angle relationships and use them to justify future shapes in geometry.	Large-angle diagram assessment.
Triangles	November - January	*Properties of triangles. Showing how triangles can vary using math & logic.	Isosceles Equilateral Scalene Equiangular Obtuse Acute Right	Prove geometric theorems. (GEO.G.CO)	-Students will classify triangles and 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.	Triangle Proof Jigsaw review, followed by a cumulative exam focused on unit comprised of multiple choice and free response questions.

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Quadrilaterals	January	*Properties of quadrilaterals *Classifying quadrilaterals *Quadrilateral proofs	Quadrilateral Parallelogram Rectangle Square Rhombus	Use coordinates to prove simple geometric theorems algebraically. (GEO-G.GPE)	-Students will classify quadrilaterals using coordinate geometry and algebraic equations including factoring & systems of equations.	Different quadrilaterals have different properties regarding sides, angles and diagonals & using logic to prove this.	Cumulative exam focused on unit comprised of multiple choice and free response questions.
Transformations	February	*Isometric transformations *Non-isometric transformations *Compound transformations	Translation Rotation Dilation Reflection Isometric Compound	Experiment with transformations in the plane. (GEO.G.CO)	-Students will show how various transformations move objects in a coordinate plane and also alter the original object.	How can you represent a transformation in the coordinate plane? How do you recognize congruence and similarity in figures?	Human Transformations Game or Transformations Jigsaw Activity.
Similarity	March	*Ratios and proportions *Similarity proofs *Proportional parts	Ratio Similarity Proportion	Understand similarity in terms of similarity transformations. (GEO-G.SRT)	-Students will understand that ratios and proportions have a physical representation.	Proportional relationships are used to find measurements of sides, angles, areas & volumes of similar polygons.	Cumulative exam focused on unit comprised of multiple choice and free response questions.
Trigonometry	April	*Special right triangles *Soh Cah Toa	Law of sines Law of cosines	Define trigonometric ratios and solve problems	-Students will recognize how the properties of	Triangles have properties which allow for the use of	Cumulative exam focused on unit comprised of

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Unit Title	Month	Content	Vocabulary	Standards	Skills	Big Ideas	Assessments
		applications		involving right triangles. (GEO-G.SRT)	special right triangles can be used to find lengths.	finding sides and angles in real-world situations.	multiple choice and free response questions.
Circles	May	*Tangent lines *Chords and arcs *Inscribed and circumscribed angles	Tangent Chord Arc Inscribed Circumscribed	Understand and apply theorems about circle. (GEO-G.C)	-Students will use standard form represented as an equation and illustrate all circle vocabulary.	When lines intersect a circle or within a circle you can find the measures of resulting angles, arcs, and segments.	Cumulative exam focused on unit, consisting of multiple choice and free response questions.
Area/Volume	June	*Area of polygons *Volume of solids	Circumference Area Perimeter Arc Sector	Explain formulas and use them to solve. (GEO-G.GMD)	-Students will use formulas to determine area/volume, surface area.	How perimeters and areas of similar polygons compare and how the surface area and volumes of similar solids compare.	Beach Project where students create sandcastle under guidelines.
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