Overview of Year

Geometry Mathematics Curriculum

SEPT	OCT	NOV	DEC	JAN	FEB	MARCH	APRIL	MAY	JUNE
Unit 1 Shadows - 25 days			Unit 2 Geometry By Design - 25 days			Unit 3 Do Bees Build It Best? -5 days	Unit 4 Orchard Hideout -25 days		

Unit 1	**Understanding**	**Essential Question**
Shadows	• Similarity and congruence • Similarity and triangles • Similarity and right triangle trigonometry • Similarity and proportionality • Angle sum formulas for polygons • Triangle inequality and extension to other polygons • Angles relationships in parallel lines cut by a transversal • Vertical angles and angle sums in polygons • Solving problems using similarity • Solving problems using right triangle trigonometry • Similarity proofs • Radian measure	What is the relationship between similarity and size transformations? How can deductive arguments be used to show similarity of two figures? What are the special properties of similar triangles and how do these properties lead to the definition of the trigonometric ratios?
Performance Task:		

Unit 2	**Understanding**	**Essential Question**

Geometry by Design	• Basic constructions • Triangle congruence theorems • Use of triangle congruence theorems to prove properties of triangles and quadrilaterals • Transformations • Use of transformations to prove properties of triangles and quadrilateral, • Triangle congruence proofs • Use of transformations to solve problems	What is the relationship between congruence and the rigid transformations? How can deductive arguments be used to show congruence of two figures? What are the special properties of triangles and quadrilaterals?
Performance Task:		

Unit 3	**Understanding**	**Essential Question**
Do Bees Build It Best?	• Area and perimeter • Surface area and volume • Pythagorean theorem • Properties of trigonometric ratios in triangles • Mean proportional • Relationships between the perimeters, areas, surface areas, and volumes of similar figures	How can area and volume formulas be developed? How can area and volume formulas be used to solve problems?
Performance Task:		

Unit 4	**Understanding**	**Essential Question**
Orchard Hideout	• Coordinate geometry • Distance formula • Midpoint formula • Slope and parallel and perpendicular lines • Equation of a circle • Completing the square	How can the coordinate plane be used to express geometric relationships algebraically? How can coordinates be used to prove geometric properties?

	• Points equidistant from the endpoints of a segment are on the perpendicular bisector of the segment (and vice versa) • Coordinate proofs • Centers of triangles • Constructions • Circle theorems • Exterior angle theorem for triangles • Midpoint connector theorem • Area of sectors of circles • Volume formulas	
Performance Task:		