EAGLE MOUNTAIN SAGINAW ISD
Curriculum and Instruction

Geometry Parent Guide

Unit 1 Concepts:

This first unit of Geometry builds on the Grade 8 and Algebra I fundamental geometric concepts of shapes, angles, formulas, and the coordinate plane.

Learning Goals:

Students will learn to construct congruent segments, congruent angles, segment bisectors, and perpendicular and parallel lines using a compass and straightedge. They will learn how to develop formal proofs and determine the validity of converse, inverse, contrapositive, and conditional statements.

Why? – Reasoning learned in this unit will help students take information, analyze, process, and use that information to solve problems in math class and beyond.

1st Six Weeks

Unit 1: Tools of Geometry for Reasoning & Proof

2nd Six Weeks

Unit 2: Parallel & Perpendicular Lines & Congruent Triangles

Unit 2 Concepts:

In unit 2 students will take a deeper look into the properties of parallel and perpendicular lines, triangles, and relationships within triangles.

Learning Goals:

Students will compare parallel and perpendicular lines by looking at their slopes then identifying their specific properties. They will also determine and prove triangles are congruent by comparing their corresponding parts.

Why? – Parallel lines and angles are used in construction projects related to streets, homes, businesses, and other city structures. Similarly, congruent triangles are used to construct buildings, bridges, towers, and even the ancient pyramids. Students can better understand the world around them by learning the concepts in this unit.

Unit 3 Concepts:

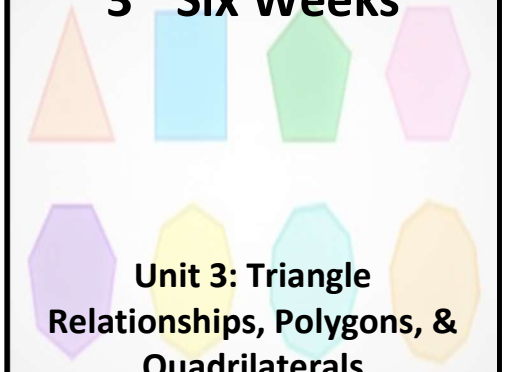
In this unit, students will continue to deepen their knowledge on the properties of parallel and perpendicular lines, triangles, and relationships within triangles, then extend these properties to polygons and quadrilaterals.

Learning Goals:

Students will discover the relationships between the angles and sides of geometric figures including midpoint, midsegment, bisectors, medians, and altitudes. They will explore the many parts and properties of triangles, quadrilaterals, and other polygons like interior and exterior sums.

Why? – Understanding properties of polygons and quadrilaterals is useful in careers such as engineering, architecture, real-estate, farming, and construction. It is also useful in everyday applications such as home improvement, gardening, or even planning a party.

3rd Six Weeks



Unit 3: Triangle Relationships, Polygons, & Quadrilaterals

Unit 4 Concepts:

In Unit 4, students explore polygons in the coordinate plane, transformations, similar polygons, special properties of right triangles, and trigonometry.

Learning Goals:

Students will use the distance, midpoint, and slope formulas to classify figures in the coordinate plane. They will explore translations, reflections, rotations, dilations, and symmetry of geometric figures. Students will use theorems to solve problems involving proportions in triangles and explore the properties of right triangles.

Why? – From seeing our reflections in mirrors to our shadows along the ground Geometry is all around us. Dilations help provide blueprints for buildings or to design the clothing that we wear. Other transformations like rotations, translations (slide) and reflections (flip) occur in our everyday lives.

4th Six Weeks

Unit 4: Coordinate & Transformational Geometry, Similarity, Proof, & Trig.

5th Six Weeks

Unit 5: Circles

Unit 5 Concepts:

Unit 5 focuses on the theorems about circles and circle measurement.

Learning Goals:

Students will use their prior knowledge of angle measures congruence and similarity to explore radian measure, areas of circles and sectors, and circles in the coordinate plane. They will also study tangent lines to circles, chords and arcs, inscribed angles, and angle measures and segment lengths.

Why? – Properties of circles can help us know the relative sizes of planets, or the distance a person has travelled on a Ferris wheel ride. They can also be used to determine which size of pizza or cake to order, or even what size ring we wear.

Unit 6 Concepts:

This last unit of Geometry focuses on the measurements of two-and three- dimensional figures. Additionally, students will get a refresher of probability.

Learning Goals:

Students will build on their knowledge of triangles, quadrilaterals, polygons, and circles by finding their perimeters and areas, and the perimeters and areas of similar figures. They will extend this knowledge to find surface areas and volumes of three- dimensional figures.

Why? – We use area and surface area in the real world to measure how much flooring or paint to purchase for home renovation projects. We use volume when we measure liquids for recipes or when we fuel our cars. This concept of Geometry is likely the most used in life outside of school.

6th Six Weeks

Unit 6: Two- & Three-Dimensional Figures

Questions? Please contact your Geometry teacher. **Additional Support:** We recommend Khan Academy and Tutor.com and remember campus tutoring is also available.