Grade: 5 **Subject:** Mathematics	**Unit 4: Circles, Polygons and Angles**
Big Idea/Rationale	• This unit explores how angles and lines combine in polygons and circles. Students will apply their knowledge of angles in a circle to describe rotational symmetry and to interpret and create circle graphs. Additionally, students will use what they've learned about circumference to investigate the relationship between diameter and the circumference of a circle.
Enduring Understanding (Mastery Objective)	Students will understand that: • Point, line, line segment, and plane are the core attributes of space objects, and real world situations can be used to think about the attributes. • Plane shapes have many properties that make them different from one another. Polygons can be described or classified by their sides and angles. • Some shapes can be reflected across one or more lines, passing through the shape so the shape folds onto itself exactly. • Commonalities in attributes of objects or situations can be used to make generalizations and relationships. • There is a formula for the circumference of a circle. • Some problems can be solved by making, reading and analyzing a graph.
Essential Questions (Instructional Objective)	• How can you describe locations and parts of space? • How are angles measured? • How do you name a polygon? • How are triangles and quadrilaterals classified? • What is line symmetry? • How can you test a generalization to see if it is correct? • How can you find the distance around a circle? • How can you use a circle graph to solve problems?
Content (Subject Matter)	• Identify and draw lines, rays and line segments. • Measure angles. • Classify angles according to their measures. • Discover the total measure of the interior angles of triangles and of quadrilaterals. • Determine missing angle measures. • Identify congruent polygons. • Sort and classify polygons. • Identify angles of a circle. • Identify turns about the center of a circle. • Determine the position of an object after a turn or a series of turns. • Recognize line symmetry and rotational symmetry. • Determine the position of an object after a turn or a series of turns. • Read a circle graph, solve problems using a circle graph, and write

	questions about a circle graph. • Display the same data in different ways. • Determine angle measure to make a circle graph. • Define and estimate circumference. • Round lengths in millimeters to the nearest whole centimeter. • Collect, record and look for patterns in data. • Solve a variety of problems using mathematical concepts and skills.
Skills/ Benchmarks (CCSS Standards)	• **5.G.B.3:** Understand that attribute belonging to a category of two dimensional figures also belong to all subcategories of that category. • **5.G.B.4:** Classify two-dimensional figures in a hierarchy based on properties. • **Mathematical Practices**
Materials and Resources	• Math Expressions, Student Journals, Manipulatives, Math themed literature, BrainPop, IXL Mathematics