# Curriculum Parent Overview (Grade 4)

## MATHEMATICS

### UNIT #4: MEASURING AND CLASSIFYING SHAPES (GEOMETRY)

**CONTENT FOCUS:**
Students estimate and measure length in U.S. standard and metric units and convert larger measurements into smaller units.  They also measure the perimeter of shapes.  Students investigate the attributes of quadrilaterals and triangles.  They focus on classifying polygons by the presence or absence of parallel lines and by angle size.  Students use Power Polygon pieces and what they know about right angles to identify, construct, and measure angles of varying degrees.  They are introduced to a new measuring tool, the protractor, to measure angle sizes.  Students make and find symmetrical designs.

**UNIT FOCUS:**
- Solving measurement problems:   In this unit, students will solve problems that involve length and distance measurements in several different ways.  One challenge of measuring lengths is using tools correctly.  Students focus on placing their tools in the correct position, leaving no gaps between each tool, reading the tools correctly, and keeping track of their measurements.
- Describing and classifying 2-dimensional figures: Geometric shapes can be sorted by various attributes, such as relative length or number of sides, number or size of angles, and absence or presence of parallel lines.  Students begin by defining what a polygon is, then further classify polygons by the number of sides.
- Describing and measuring angles: In this unit, students examine angle size in relation to one kind of angle that they are familiar with from their work in previous grades - a right angle.  With this as their reference point, students determine which angles are smaller than a right angle (acute) or larger than a right angle (obtuse).
- Understanding and determining area: Area is the amount of space a shape covers.  In this unit, students deepen their understanding of area, leading to identifying and using a generalizable method of multiplying the dimensions of a rectangle to determine its area.
- Identifying mirror symmetry in shapes: Students develop an understanding of mirror symmetry as they identify lines of symmetry in designs or shapes and create designs with mirror symmetry.  Students use mirror symmetry to help them find the area of a shape (by finding the area of half a symmetrical shape and doubling it) and to determine whether two shapes or two parts of a shape have equal area.

**MATHEMATICAL PRACTICES:**
MP5: Use appropriate tools strategically.
MP6: Attend to precision.

**CONNECTIONS TO PREVIOUS CONTENT:**
The work in this unit builds on work students have done in previous grades that includes measuring with a variety of units of length, finding perimeter and area, and reasoning about 2-dimensional shapes and their attributes.  The work in this unit assumes students are able to measure the length of objects, find the perimeter and area of shapes, and identify some attributes of shapes such as number and relative length of sides, and number of angles.

**CONNECTIONS TO FUTURE CONTENT:**
Students will continue to use attributes of shape to classify, categorize, and define various geometric shapes as this work on classifying shapes is extended in the next grade.  The measurement work in this unit is extended in future grades to include converting different-sized units within a given measurement system and to understanding volume, including applying formulas to finding volume of rectangular prisms.

**MATH AT HOME:**

- Play "I Spy" Polygons and Angles.  Find things around the house that fit a rule and play a guessing game.  You might describe a mirror by saying, "I'm thinking of something in this room that has two equal sides, at least two equal angles, and at least two parallel sides.  What could it be?"  Have your child identify objects that fit the rule.
- Symmetry Projects: The world is full of symmetrical objects. Look for objects that are symmetrical around the kitchen or outside while on a walk or a drive. You can also create art projects that use symmetry.
- Review the Math Words and Ideas videos for this unit on SavvasRealize site.