

Dear Families,

Welcome to 7th Grade. This year, we will be using resources from the Illinois State Board of Education Model Mathematics Curriculum. Here are the key topics in mathematics this year:

- Critical Area #1: Students extend their understanding of ratios and **develop understanding of proportionality to solve single- and multi-step problems**. Students use their understanding of ratios and proportionality to solve a wide variety of percent problems, including those involving discounts, interest, taxes, tips, and percent increase or decrease. Students solve problems about scale drawings by relating corresponding lengths between the objects or by using the fact that relationships of lengths within an object are preserved in similar objects. Students graph proportional relationships and understand the unit rate informally as a measure of the steepness of the related line, called the slope. They distinguish proportional relationships from other relationships.
- Critical Area #2: Students develop a **unified understanding of number, recognizing fractions, decimals (that have a finite or a repeating decimal representation), and percents as different representations of rational numbers**. Students extend addition, subtraction, and division to all rational numbers, maintaining the properties of operations and the relationships between addition and subtraction, and multiplication and division. By applying these properties, and by viewing negative numbers in terms of everyday contexts (e.g., amounts owed or temperatures below zero), students explain and interpret the rules for adding, subtracting, multiplying, and dividing with negative numbers. They use the arithmetic of rational numbers as they formulate expressions and equations in one variable and use these equations to solve problems.
- Critical Area #3: Students continue their work with area from Grade 6, solving problems involving the area and circumference of a circle and surface area of three-dimensional objects. In preparation for work on congruence and similarity in Grade 8 they **reason about relationships among two-dimensional figures using scale drawings and informal geometric constructions**, and they gain familiarity with the relationship between angles formed by intersecting line. Students work with three-dimensional figures, relating them to two-dimensional figures by examining cross-sections. They solve real-world and mathematical problems involving area, surface area, and volume of two- and three-dimensional objects composed of triangles, quadrilaterals, polygons, cubes and right prisms.
- Critical Area #4: Students build on their previous work with single data distributions to **compare and two data distributions and address questions about differences between populations**. They begin informal work with **random sampling** to generate data sets and learn about the importance of representative samples for drawing inferences.

Our curriculum consists of 8 units that will be taught in the following sequence:

- 1) **Ratios and Proportionality:** Students develop the concept of proportionality by representing proportional relationships with visual and algebraic models, extending their understanding of ratios and rates from Grade 6 to more complex situations in Grade 7.
- 2) **Ratio and Proportion Applications:** Students will be using visual models (such as tape diagrams and double number lines) as well as equations to solve problems involving such topics as percent of increase and decrease or scale drawing.
- 3) **Rational Numbers:** The 3rd unit involves addition, subtraction, multiplication and division of positive and negative numbers. This includes solving single-step and multi-step real-world and mathematical problems involving positive and negative whole numbers, fractions, decimals and percents.
- 4) **Expressions:** Unit 4 offers students the opportunity to apply their understanding of properties and of operations with positive and negative rational numbers to create equivalent expressions with rational coefficients. Students now analyze the work they have been doing in units 1-3 to discern the structures and properties of the expressions used.
- 5) **Equations & Inequalities:** Unit 5 is a study of the use of equations to represent and solve multi-step real world and mathematical problems. They apply all that they have practiced in Units 1-4 to utilize algebraic reasoning in the context of problems.
- 6) **Data Distributions:** Unit 6 is an opportunity to apply understandings of statistics to compare populations and represent them in data distributions. Students also gain an understanding of random sampling.
- 7) **Probability:** Unit 7 is students' first in-depth study of probability. Students develop a general understanding of the likelihood of events occurring by realizing that probabilities fall between 0 and 1. They gather data from simulations to estimate theoretical probability using the experimental probability.

- 8) **Geometry:** In Unit 8, students solve real-world and mathematical problems involving area, surface area, volume of two- and three-dimensional objects composed of polygons.

Our sequence of units has been carefully planned to prepare our students for success on the new PARCC assessments. These assessments have replaced the ISAT as the Illinois State Assessment, and will be given in March and in May of this school year. Students will practice many skills and concepts by revisiting them in daily routines and stations throughout the school year. We are looking forward to a wonderful experience in 7th Grade.