MAFS At-A-Glance Overview For Parents#

Grade	MAFS Grade Level Overview	Support MAFS Learning At Home
6	In grade six, your child will learn the concept of rates and ratios and use these tools to solve word problems. Students will work on quickly and accurately dividing multi-digit whole numbers and adding, subtracting, multiplying, and dividing multi-digit decimals. Students will extend their previous work with fractions and decimals to understand the concept of rational numbers—any number that can be made by dividing one integer by another, such as ½, 0.75, or 2. Students will also learn how to write and solve equations—mathematical statements using symbols, such as 20+x = 35—and apply these skills in solving multi-step word problems. Activities in these areas will include: • Understanding and applying the concepts of ratios and unit rates, and using the correct language to describe them (for example, the ratio of wings to beaks in a flock of birds is 2 to 1, because for every 2 wings there is 1 beak) • Building on knowledge of multiplication and division to divide fractions by fractions • Understanding that positive and negative numbers are located on opposite sides of 0 on a number line • Using pairs of numbers, including negative numbers, as coordinates for locating or placing a point on a graph • Writing and determining the value of expressions with whole-number exponents (such as 15+32) • Identifying and writing equivalent mathematical expressions by applying the properties of operations. For example, recognizing that 2 (3+x) is the same as 6+2x • Understanding that solving an equation such as 2+x = 12 means answering the question, "What number does x have to be to make this statement true?" • Representing and analyzing the relationships between independent and dependent variables • Solving problems involving area and volume	• Ask your child to calculate the unit rates of items purchased from the grocery store. For example, if 2 pounds of flour cost $3.00, how much does flour cost per pound? • Have your child determine the amount of ingredients needed when cooking. For example, if a recipe calls for 8 cups of rice to serve 4 people, how many cups of rice do you need to serve 6 people? • Encourage your child to stick with it whenever a problem seems difficult. This will help your child see that everyone can learn math. • Praise your child when he or she makes an effort, and share in the excitement when he or she solves a problem or understands something for the first time.
7	In grade seven, students will further develop their understanding of rates and ratios, using tables, graphs, and equations to solve real-world problems involving proportional relationships. Students will also work on quickly and accurately solving multi-step problems involving positive and negative rational numbers—any number that can be made by dividing one integer by another, such as ½, 0.75, or 2. Additionally, students will expand their knowledge of geometry and apply the properties of operations to solve real world problems involving the measurement of multi-dimensional objects. Activities in these areas will include: • Determining whether two quantities are in a proportional relationship and using knowledge of rates, ratios, proportions, and percentages to solve multi-step problems • Identifying the unit rate of change (the constant rate at which the value of a variable changes) in tables, graphs, equations, and verbal descriptions • Calculating the unit rates associated with ratios of fractions, including quantities measured in different units (for example, the ratio of ½ a mile for every ¼ of an hour means that you travel 2 miles in an hour) • Solving problems using equations to find the value of one missing variable • Applying the properties of operations to generate equivalent mathematical expressions • Solving multi-step word problems by adding, subtracting, multiplying, and dividing positive and negative rational numbers in any form (including whole numbers, fractions, or decimals) • Understanding that numbers cannot be divided by 0 • Converting rational numbers to decimals using long division • Describing situations in which positive and negative quantities combine to make 0 • Finding the area of two-dimensional objects and the volume and surface area of three-dimensional objects	• Ask your child to calculate the unit rates of items purchased from the grocery store. For example, if 2 pounds of flour cost $3.00, how much does flour cost per pound? • Use store advertisements to engage your child in working with numbers. For example, if a store advertises 30% off, have your child estimate the dollar amount of the discount, as well as the sale price of an item. • Have students use four 4's and any of the four arithmetic operations to write the numbers from 0 to 20 (for example, 44-44=0; 4•4-4•4 = 0. How do you get 1? 4/4+4-4=1). • Encourage your child to stick with it whenever a problem seems difficult. This will help your child see that everyone can learn math. • Praise your child when he or she makes an effort, and share in the excitement when he or she solves a problem or understands something for the first time.
8	In grade eight, students take their understanding of unit rates and proportional relationships to a new level, connecting these concepts to points on a line and ultimately using them to solve linear equations that require them to apply algebraic reasoning as well as knowledge of the properties of operations. Students will also expand their understanding of numbers beyond rational numbers to include numbers that are irrational—meaning that they cannot be written as a simple fraction, such as the square root of 2 Activities in these areas will include: • Understanding that every rational number (such as ½, 0.3, 2, or -2) can be written as a decimal, but that the decimal form of an irrational number (such as 2) is both non-repeating and infinite • Applying the properties of exponents to generate equivalent numerical expressions • Determining the value of square roots of small perfect squares (such as the square root of 49= 7) and cube roots of small perfect cubes (such as the cube root of 364=4) • Graphing proportional relationships and interpreting the unit rate as the slope (how steep or flat a line is) • Solving and graphing one- and two-variable linear equations • Understanding that a function is a rule that assigns to each value of x exactly one value of y, such as y=2x, a rule that would yield such ordered pairs as (-2,-4), (3,6), and (4,8) • Comparing the properties of two functions represented in different ways (in a table, graph, equation, or description) • Determining congruence (when shapes are of equal size and shape) and similarity (same shape but different sizes) • Learning and applying the Pythagorean Theorem (an equation relating the lengths of the sides of a right triangle: a2 + b2 = c2) • Solving problems involving the volume of cylinders, cones, and spheres	• Ask your child to do an Internet search to determine how mathematics is used in specific careers. This could lead to a good discussion and allow students to begin thinking about their future aspirations. • Have your child use magazines, clip art, and other pictures to find and describe examples of similar and congruent figures • Using different objects or containers (such as a can of soup or a shoebox), ask your child to estimate surface area and volume, and check the answer together. • Encourage your child to stick with it whenever a problem seems difficult. This will help your child see that everyone can learn math. • Prompt your child to face challenges positively and to see mathematics as a subject that is important. Avoid statements like "I wasn't good at math" or "Math is too hard." • Praise your child when he or she makes an effort, and share in the excitement when he or she solves a problem or understands something for the first time.