Fifth Grade Mathematics

Dear Fifth Grade Families;

Welcome to the Ann Arbor Public Schools Family Pages. We hope the information you find here assists you in supporting your child while s/he is learning important skills and concepts throughout the fifth grade year.

Everyday Mathematics provides the core learning resource for Mathematics in the Ann Arbor Public Schools elementary grades. ***Everyday Mathematics*** (EDM) supports teachers in providing students with the mathematical instruction and experiences they need to ensure that their learning focuses on the major work of each grade. Units of study are based on grade level goals for mathematical content and mathematical practice supported by aligned instruction and assessment. Information below is from *Everyday Mathematics, Goals for Mathematical Practice*, McGraw Hill Education.

Operations and Algebraic Thinking

Write and interpret numerical expressions	Write numerical expressions that contain grouping symbols. Evaluate expressions that contain grouping symbols. Model real-world and mathematical situations using simple expressions. Interpret numerical expressions without evaluating them.
Analyze patterns and relationships	Generate numerical patterns using given rules. Identify relationships between corresponding terms of two patterns. Form ordered pairs from corresponding terms of two patterns.
	Read, write and compare decimals to the thousandths. Compare and order decimals. Record decimal comparisons using >, =, <. Use place-value understanding to round decimals to any place.

Number and Operations in Base Ten

Understand the place value system	Understand the relationship between the places in multi-digit numbers. Use whole-number exponents to denote powers of 10. Multiply whole numbers by powers of 10; explain the number of zeros in the product. Multiply or divide decimals by powers of 10; explain the decimal-point placements in the answer. Represent decimals. Read and write decimals using numerals. Read and write decimals using number names. Read and write decimals in expanded form. Compare and order decimals. Record decimal comparisons using >, =, <. Use place value understanding to round decimals to any place.
Use place value understanding and properties of operations to perform multi-digit arithmetic	Add multi-digit whole numbers fluently using the standard algorithm. Subtract multi-digit whole numbers fluently using the standard algorithm. Multiply a whole number of up to four digits by a 1-digit number and a 2-digit number. Illustrate and explain multiplication strategies and calculations. Multiply a whole number by a multiple of 10,100, or 1,000. Divide a whole number of up to four digits by a 1-digit whole number. Illustrate and explain division strategies and calculations.
Perform operations with multi-digit whole numbers and with decimals to hundredths.	Fluently multiply multi-digit whole numbers using the standard algorithm. Divide multi-digit whole numbers. Illustrate and explain solutions to division problems. Make and use estimates for decimal addition and subtraction problems. Add and subtract decimals using models or strategies. Explain decimal addition and subtraction strategies.

	Multiply and divide decimals using models or strategies. Explain decimal multiplication and division strategies. Make and use estimates for decimal multiplication and division problems.
	Number and Operations: Fractions
Use equivalent fractions as a strategy to add and subtract fractions	Add and subtract fractions with unlike denominators. Add and subtract mixed numbers with unlike denominators. Solve number stories involving fraction addition and subtraction. Use estimates to reason about sums and differences of fractions.
Apply and extend previous understandings of multiplication and division	Interpret a fraction as division of a numerator by a denominator. Solve number stories involving whole number division that leads to fractional answers. Multiply fractions by whole numbers. Multiply fractions by fractions. Multiply mixed numbers by whole numbers, fractions, and mixed numbers. Interpet (a/b) x q as a parts of a partition of q into b equal parts. Create story contests for fraction multiplication problems. Justify the area formula for a rectangle with fractional side lengths by tiling. Find the areas of rectangles with fractional side lengths by multiplying. Represent fraction products as rectangular areas. Compare the size of a product to one factor based on the size of the other factor. Explain the effects of multiplying by fractions greater than 1 or less than 1. Explain the effects of multiplying by fractions equal to 1. Solve real-world problems involving fraction multiplication. Solve real world problems involving mixed number multiplication. Interpret division of a unit fraction by a nonzero whole number and find quotients. Interpret division of a whole number by a unit fraction and find quotients. Solve real-world problems involving division of unit fractions by whole numbers. Solve real-world problems involving division of whole numbers by unit fractions.

Measurement and Data

Convert like measurement units within a given measurement system	Convert among measurement units within the same system. Use measurement conversions to solve multi-step, real world problems.
Represent and interpret data	Organize and represent data on line plots. Solve problems involving fractional data on line plots.
Geometric measurement: understand concepts of volume	Recognize volume as an attribute of solid figures. Understand that a unit cube has 1 cubic unit of volume and can measure volume. Understand that a solid figure completely filled by n unit cubes has volume n cubic units. Measure volumes by counting unit cubes and improvised units. Relate packing prisms with cubes to volume formulas. Represent products of three whole numbers as volumes. Apply formulas to find volumes of rectangular prisms. Find volumes of figures composed of right rectangular prisms. Solve real world problems involving volumes of figures.

Geometry

Graph points on the coordinate plane to solve real world and mathematical problems	Understand and use a Cartesian coordinate grid in two dimensions. Represent problems by graphing points in the first quadrant. Interpret coordinate values of points in context.
Classify two-dimensional figures into	Understand that shapes in a subcategory have all the attributes of shapes in the parent category.

categories based on their properties	Classify two-dimensional figures in a hierarchy based on properties.

Mathematical Practice

Make sense of problems and persevere in solving them	Make sense of your problem. Reflect on your thinking as you solve your problem. Keep trying when your problem is hard. Check whether your answer makes sense. Solve problems in more than one way. Compare the strategies you and others use.
Reason abstractly and quantitatively	Create mathematical representations using numbers, words, pictures, symbols, gestures, tables, graphs, and concrete objects. Make sense of the representations you and others use. Make connections between representations.

The Council of Great City Schools provides information on such topics as: 1) the progression of student learning across grade levels; 2) suggestions for helping your child at home; 3) questions to ask your child's teacher for a better understanding of your child's growth; and 4) parents may find ways to enrich a child's work at home by understanding the learning that will happen in the following year.
Great City Schools Roadmap - 5th Grade
Great City Schools Roadmap in Spanish - 5th Grade

Suggestions from *The Council of Great City Schools:*
Partnering with Teachers
Don't be afraid to reach out to your child's teacher—you are an important part of your child's education. Ask to see a sample of your child's work or bring a sample with you. Ask the teacher questions like:

- Is my child at the level where he/she should be at this point of the school year?
- Where is my child excelling?
- What do you think is giving my child the most trouble?
- How can I help my child improve in this area?
- What can I do to help my child with upcoming work?

Helping Your Child Learn Outside of School
1. Use everyday objects to allow your child to count and group a collection of objects.
2. Encourage your child to construct numbers in multiple ways. For example, what are some ways that you can make 10? Answers might include 5+5, 6+4, 8+2, etc. Have your child explain his or her thinking.
3. Have your child create story problems to represent addition and subtraction of small numbers. For example, "Ann had eight balloons. Then she gave three away, so she only had five left."