

Dear Fourth Grade Parents,

September

"What lies behind us and what lies before us are small matters compared to what lies within us."

Ralph Waldo Emerson

Welcome to the A.C.E. Program.

My name is Shayna Boyd and I am one of Western Avenue's ACE Resource teachers. I am committed to helping your child expand his/her 'gifts'/strengths, as well as developing skills to confront/overcome challenges. I am invested in your child being successful academically, socially, and, emotionally. I use a variety of strategies to address students' needs. I consider myself to be a lifelong learner searching for new ways to grow and be an even better teacher. I welcome new ideas/suggestions that will help me be the best I can be for my students, your children.

Classroom Structure:

- The ACE program implements various cooperative learning structures. These structures are beneficial to students at high academic performance levels because they improve social skills including listening, taking different perspectives, leadership, problem solving, and conflict resolution. "Cooperative learning consistently produces academic gains, improves race relations, develops social skills, educates for character, promotes self-esteem, enhances class climate, and fosters leadership and teamwork skills." (Kagan).

Class meeting days and times:

- Math
 - Monday: 11:00-12:00, Wednesday 2:00-3:00
 - Tuesday: 11:00-12:00, Thursday: 2:00-3:00

Supplies:

- Composition Notebook
- 2-Pocket Folder

Donations:

- Pencils, pens, markers, colored pencils, Kleenex, hand sanitizer

Homework:

- Homework is assigned with a purpose. We may have the children finish something that was started in school, read text, or conduct some type of research.

Goals:

- To develop the ability to be responsible for one's own learning.
- To develop the ability to understand that it is essential for human beings to work together.
- To develop the ability to demonstrate critical thinking and problem solving.
- To develop the ability to recognize and produce quality performances and quality products.
- To develop the ability to communicate effectively.
- To develop the ability to use a variety of technologies effectively and ethically.

Expectations:

- Respect the classroom environment and other points of view, opinions, and differences.
- Welcome and embrace challenges and see them as opportunities for growth.
- Be prepared for our class sessions.
- Be an active participant.

I am so happy to have your child in my class. It's going to be a great year!

Peace,

Ms. Shayna Boyd
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Dear Parents,

The following is a brief overview of this year's 4th and 5th grade ACE Pullout Math Curricula- **Project M³: Mentoring Mathematical Minds** and **Math Innovations**, both by Kendall Hunt Publishing Company:

Project M³: Mentoring Mathematical Minds is a series of curriculum units that supports the Common Core State Standards for Mathematics and the Standards for Mathematical Practice. Each unit is designed to motivate, challenge, and engage mathematically talented students at the elementary level.

Project M³ has been recognized as one of the nation's top programs in gifted mathematical education by the National Association for Gifted Children (NAGC) with their Distinguished Curriculum Award.

Math Innovations is a coherent and focused middle grades curriculum that aligns to the Common Core State Standards and is designed to engage students in gaining a richer, deeper, and more proficient understanding of mathematics. Mathematical ideas are presented in a real-world context to help students understand how math is related and relevant to their daily lives. It addresses critical mathematics areas and supports student learning with a variety of real-life problem-solving scenarios that are addressed through activities, games, and investigations.

I will be pulling from both programs throughout the year in order to provide the most thorough, rigorous, and engaging experience possible. At the end of each chapter or unit, students will communicate their learning through writing (a rubric has been included so that you can see what I will expect students to include in their explanations). Our first units will focus on topics that will provide a solid foundation for your child continues to advance in mathematics. The chart below details the first two texts for both fourth and fifth grade, with specific information for each unit following this page.

Grade	Project M³	Math Innovations
Fourth	<i>Our Environment Matters: Making Sense of Percents</i>	<i>Let's Be Rational: Focusing on Fractions, Decimals and Integers</i>
Fifth	<i>Record Makers and Breakers: Analyzing Graphs, Tables, and Equations</i>	<i>Solve It: Focusing on Equations, Inequalities and Exponents</i>

Dear Families,

Welcome to the *Project M³* unit, *Record Makers and Breakers: Analyzing Graphs, Tables, and Equations*. Our class is looking forward to working with concepts of algebra, especially as it pertains to analyzing change. We will be looking at a variety of world records and may even try to set a record of our own.

Throughout this unit, students will be learning algebraic concepts that will be useful not only throughout high school and college mathematics classes, but also throughout their lives.

In the first activity, students will be interpreting points on a graph that represent heights and average points scored for a variety of NBA players. This may be harder than it sounds because heights are represented on the x-axis instead of the y-axis. You might ask your student for a look at the NBA Star Stats graph in the *Student Mathematician's Journal* to try this yourself and/or encourage your student to create a new graph using stats from the Women's National Basketball Association. In the second lesson, students will be looking at one of the world records set by Ashrita Furman, who holds the most (and some of the craziest) world records of anyone alive. This activity looks at Furman's initial record-setting time for pushing an orange with his nose for a mile in Terminal 4 in New York's JFK airport. Students will get a chance to try a small part of this themselves as they graph and analyze the results for their own orange nose push. Later in the first chapter, students will continue to investigate and analyze graphs and tables of wacky world records. Throughout this chapter, they will be recognizing and analyzing relationships between independent and dependent variables and using graphs and tables to determine whether a situation describes constant change. During these investigations, students are constantly trying out strategies, seeing if they work, and then revising to get the correct answer. In fact, they are working just like mathematicians.

In the second chapter, students will continue to analyze change and will write recursive and explicit rules to describe constant change in additional crazy world records, such as one set by Remy Bricka walking across the Atlantic Ocean. They will expand their understanding of algebraic concepts as they analyze graphs and tables showing different rates of change and different starting points, and use proportional and algebraic reasoning to solve equations in situations involving two equations with two unknowns. Again, they will be working just like mathematicians. The unit will end with a project in which the students attempt to set their own record. Please help them in keeping track of their progress toward this record.

At the heart of all *Project M³* investigations are problem solving, reasoning, and creative thinking. When students use these mathematical practices, they think and act like mathematicians. This helps them gain a deep understanding of the mathematics and develops their mathematical talent.

I hope your child enjoys exploring this unit and the mathematical challenges it poses. I invite you to share in the discoveries your child makes by engaging in conversation around the family dinner table. You may even learn something new about algebra from your young mathematician!

Sincerely,




Let's Be Rational:

Focusing on Fractions, Decimals and Integers

Goals of the Unit

In *Let's Be Rational*, students will:

- ▶ Read and write large numbers to the trillions place.
- ▶ Determine where given fractions and decimals are located on the number line.
- ▶ Recall procedures to add, subtract, multiply, and divide fractions and decimals.
- ▶ Identify fractions whose decimal expansions terminate and understand why this occurs.
- ▶ Describe and use terminating and repeating decimal patterns.
- ▶ Understand the features of the number line and use it to compare integers and rational numbers.
- ▶ Find the opposite and absolute value of any rational number.
- ▶ Identify numbers by sets (whole, natural, integers, rational, irrational, and real).
- ▶ Graph points and sets of points on the number line.
- ▶ Graph ordered pairs consisting of integer and real values on all four quadrants of the Cartesian plane.
- ▶ Add and subtract integers and signed numbers.
- ▶ Multiply and divide integers and signed numbers.

Alignment with the Common Core State Standards for Mathematics

In the Course 2 *Let's Be Rational* unit, students explore the relationships among positive and negative numbers including fractions and decimals, to model and solve problems. They first examine large and small positive numbers and review operations with fractions. Then, they move on to explore signed numbers. They learn about the magnitude and direction (positive and negative) of numbers. Students graph coordinate pairs that include both positive and negative coordinates. Finally, students develop rules to add, subtract, multiply, and divide both positive and negative decimals and fractions. One of the critical areas in the Common Core State Standards (CCSS) Mathematical Standards at Grade 7 addressed in this unit is the development of an understanding of operations on rational numbers:

“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, multiplication, 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” (CCSS, p. 46).

The study of number at this level serves three purposes. First, students experience exploring very large and very small numbers. They use partitioning on a number line to look at intervals and to compare these numbers. Partitioning the number line serves to illustrate, in an informal manner, the density of the rational numbers—that between any two distinct points on the number line is an infinite number of other points. Students begin to understand the magnitude of numbers.

The second purpose is to extend students' understanding of number from the set of whole numbers to the set of the rational numbers: positive and negative integers, fractions, and decimals. Students will understand the idea of direction as applied to signed numbers. They will determine the opposite and absolute value of any real number. Additionally, they will extend the Cartesian plane to enable graphing of points with negative coordinates.

Finally, students develop methods of computing with integers, fractions, and decimals. Students will add, subtract, multiply, and divide signed rational numbers. The following content standards from the Common Core State Standards are addressed:

- 7.NS.1. Apply and extend previous understandings of addition and subtraction to add and subtract rational numbers; represent addition and subtraction on a horizontal or vertical number line diagram.
 - Describe situations in which opposite quantities combine to make 0.
 - Understand $p + q$ as the number located a distance $|q|$ from p , in the positive or negative direction depending on whether q is positive or negative. Show that a number and its opposite have a sum of 0 (are additive inverses). Interpret sums of rational numbers by describing real-world contexts.
 - Understand subtraction of rational numbers as adding the additive inverse, $p - q = p + (-q)$. Show that the distance between two rational numbers on the number line is the absolute value of their difference, and apply this principle in real-world contexts.
 - Apply properties of operations as strategies to add and subtract rational numbers.
- 7.NS.2. Apply and extend previous understandings of multiplication and division and of fractions to multiply and divide rational numbers.
 - Understand that multiplication is extended from fractions to rational numbers by requiring that operations continue to satisfy the properties of operations, particularly the distributive property, leading to products such as $(-1)(-1) = 1$ and the rules for multiplying signed numbers. Interpret products of rational numbers by describing real-world contexts.
 - Understand that integers can be divided, provided that the divisor is not zero, and every quotient of integers (with non-zero divisor) is a rational number. If p and q are integers, then $-\left(\frac{p}{q}\right) = \frac{(-p)}{q} = \frac{p}{(-q)}$. Interpret quotients of rational numbers by describing real-world contexts.
 - Apply properties of operations as strategies to multiply and divide rational numbers.
 - Convert a rational number to a decimal using long division; know that the decimal form of a rational number terminates in 0s or eventually repeats.
- 7.NS.3. Solve real-world and mathematical problems involving the four operations with rational numbers.

STUDENT MATHEMATICIAN'S JOURNAL: GUIDES FOR TEACHING AND ASSESSING

RUBRIC FOR STUDENT MATHEMATICIAN'S JOURNAL

MATHEMATICAL CONCEPTS	
4	Overall, student demonstrates a strong understanding of concepts and, if applicable, uses an appropriate and efficient strategy to solve problem correctly. The student answers all parts of the question/prompt.
3	Overall, student demonstrates a good understanding of concepts and, if applicable, uses an appropriate and efficient strategy but with minor errors or incomplete understanding. The student answers all parts of the question.
2	Overall, student demonstrates a partial understanding of concepts and, if applicable, uses an appropriate strategy but may have major errors. The student may not have answered all questions.
1	Overall, student demonstrates a lack of understanding of concepts and, if applicable, does not use an appropriate strategy. The student may not have answered all questions.
MATHEMATICAL REASONING	
4	Student states ideas/generalizations that are well developed and builds a strong logical progression of statements to explain the reasoning. Student fully justifies the conclusion with supporting details and may use a variety of representations such as examples, charts, graphs, models and words as appropriate.
3	Student states adequately developed ideas/generalizations and builds an appropriate logical progression of statements to explain the reasoning. The reader may need to infer a step that has not been fully explained. Student provides some justification for the reasoning.
2	Student states partially developed ideas/generalizations and/or attempts to justify the reasoning but may be missing steps in the progression of statements that cause difficulty in understanding the explanation.
1	Student does not state ideas/generalizations clearly and does not provide an explanation to justify the thinking.
MATHEMATICAL VOCABULARY	
4	Student uses all mathematical vocabulary appropriately; including mathematical vocabulary related to the major math concept(s) of the unit.
3	Student uses most vocabulary appropriately. Student may have misused or omitted an appropriate vocabulary term.
2	Student uses only some of the mathematical vocabulary or may have a major misunderstanding of terms. Student may have misused or omitted several vocabulary terms or a key vocabulary term related to the major concept(s) of the unit.
1	Student does not use any mathematical vocabulary appropriate to the concept(s) being discussed.

Any non-response is given a rating of zero.