Duval County School

6th Grade Mathematics
Volume , Issue

"Bits & Pieces II" Math Newsletter

Dear Family,

The next unit in your child's course of study in mathematics class this year is **Bits and Pieces II: Using Fraction Operations**. This is the second of three number units that focus on developing concepts and procedures for computing with fractions, decimals, and percents.

UNIT GOALS

In this unit, the focus is on understanding and developing systematic ways to add, subtract, multiply, and divide fractions. While working on this unit, students investigate interesting problem situations to help them develop algorithms for fraction computation. In addition, students will use benchmarks and number and operation sense to estimate solutions for computations to help them decide if their answers are reasonable.

HELPING WITH HOMEWORK

You can help with homework and encourage sound mathematical habits as your child studies this unit by asking questions such as:

- What models or diagrams might be helpful in understanding the situation?
- What models or diagrams might help decide which operation is useful in solving a problem?
- What is a reasonable estimate for the answer?
- What strategies or algorithms would help you solve this problem?

In your child's notebook, you can find worked-out examples from problems done in class, notes on the mathematics of the unit, and descriptions of the vocabulary words.

HAVING CONVERSATIONS ABOUT THE MATHEMATICS IN BITS AND PIECES II

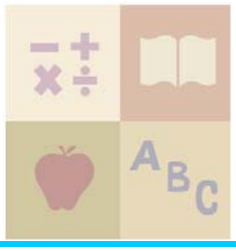
You can help your child with his or her work for this unit in several ways:

- There are various logical procedures for computing with fractions. At times, students may be working with ideas and algorithms that are different from the ones you learned. Be open to these approaches. Encourage your child to share these methods with you as a way to help them make sense of what they are studying.
- Ask your child to tell you about a problem that he or she has enjoyed solving. Ask for an explanation of the ideas in the problem.
- Look over your child's homework and make sure all questions are answered and explanations are clear. A few important mathematical ideas that your child will learn in Bits and Pieces II are given on the back. As always, if you have any questions or concerns about this unit or your child's progress in class, please feel free to call.

Descriptive Glossary,

algorithm - A set of rules for performing a procedure.
benchmark - A "nice" number that can be used to estimate the size of other numbers.
denominator - The number written below the line in a fraction.
equivalent fractions - Fractions that are equal in value, but may have different numerators and denominators.

fact family - A set of related addition-subtraction sentences or multiplication-division sentences.
numerator - The number written above the line in a fraction.
reciprocal - A factor by which you multiply a given number so that their product is 1.
unit fraction - A fraction with a numerator of 1.



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Unit 1 – Goals

- Use benchmarks and decimal-fraction relationships to develop estimation strategies for finding fraction and decimal sums
- Use estimation skills in contextual situations where an exact answer is not needed to make an informed decision
- Make decisions about whether an overestimate or an underestimate will suffice

Unit 2 – Goals

- Use number sentences to express sums and differences
- Explore the use of fractions as operators (e.g., 2/3 of 640 acres)
- Write number sentences to represent situations for adding and subtracting fractions and mixed numbers
- Explore the inverse relationship between the addition and subtraction of fractions
- Develop and use efficient strategies for adding and subtracting fractions and mixed numbers
- Develop an efficient algorithm for adding and subtracting fractions

Unit 3 – Goals

- Estimate products of fractions
- Use models to represent the product of two fractions
- Understand that finding a fraction *of* a number means multiplication
- Develop and use strategies and models for multiplying combinations of fractions, whole numbers, and mixed numbers to solve problems
- Determine when multiplication is an appropriate operation
- Explore the relationships between two numbers and their product
- Develop and use an efficient algorithm to solve any fraction multiplication problem

Unit 4 – Goals

- Use models to represent division situations (a whole number divided by a fraction, a fraction divided by a whole number, and a fraction divided by a fraction)
- Develop and use strategies for dividing a whole number by a fraction, a fraction by a whole number, and a fraction by a fraction
- Understand when division is the appropriate operation
- Develop an efficient algorithm to solve any fraction division problem
- Explore the inverse operations of multiplication and division

Important Concepts & Examples

algorithm - A set of rules for performing a procedure.

The following algorithm written for adding two fractions:

To add two fractions, first change them to equivalent fractions with the same denominator. Then add the numerators and put the sum over the common denominator.

$$\frac{2}{3}+\frac{1}{6}=\frac{4}{6}+\frac{1}{6}=\frac{5}{6}$$

fact family - A set of related addition-subtraction sentences or multiplication-division sentences.

For example, the set of numbers 3, 5, and 15 are part of this multiplication-division fact family:

3 x 5 = 15; 5 x 3 = 15; 15 ÷ 5 =3; 15 ÷ 3 = 5

And, the set of numbers 3, 5, and 8 are part of this addition-subtraction fact family:

3 + 5 = 8; 5 + 3 = 8; 8 – 3 = 5; 8 – 5 = 3

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