Dear Family,

The first Unit in your child's mathematics class this year is ***Prime Time: Factors and Multiples,*** part of the number strand in *Connected Mathematics*.

Unit Goals

In this Unit, the focus is on the properties of whole numbers, especially those related to multiplication and division. Students will learn about factors, multiples, divisors, products, prime and composite numbers, common factors and multiples, the Distributive Property, and Order of Operations. They will discover key properties of numbers and use them to solve problems.

Helping With Homework

In your child's notebook, you can find worked-out examples, notes on the mathematics of the Unit, and descriptions of the vocabulary words.

You can help with homework and encourage sound mathematical habits during this Unit by asking questions such as the following:

- Will finding factors or multiples help you solve the problem?
- How can you find the factors of a number? How can you find the multiples of a number?
- What common factors and common multiples do the numbers have?
- How does the Order of Operations help you solve problems?
- How can you use the Distributive Property to write a number as two equivalent expressions?

As part of the assessment for this Unit, your child may be asked to do a project called "My Favorite Number." As students work through the Unit, they apply their new knowledge to create projects that include everything they have learned about their chosen number and its properties.

Having Conversations About The Mathematics in Prime Time

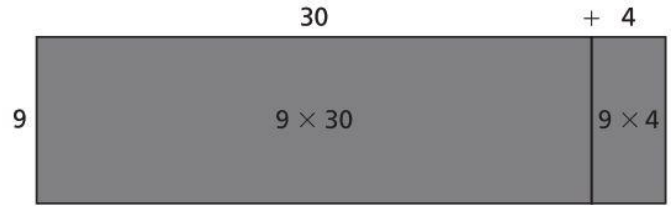
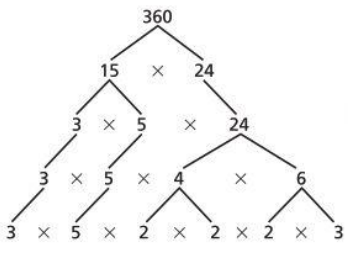
You can help your child with his or her work for this Unit in several ways:

- Have your child share his or her mathematics notebook with you, showing you what he or she has recorded about numbers. Ask your child to explain why these ideas are important.
- Ask your child to explain the rules for playing the Factor Game and the Product Game. If you have time, offer to play a game.
- Look over your child's homework; make sure that all questions are answered and the explanations are clear.
- Have your child explain the Order of Operations and why it is important.
- Ask your child to explain how to use the Distributive Property to find the area of a rectangle.

Common Core State Standards

Students develop and use all of the Standards of Mathematical Practice throughout the curriculum. In *Prime Time*, students practice constructing viable arguments and critiquing the reasoning of others as they use properties of numbers to solve problems and justify their responses to their classmates. *Prime Time* focuses largely on the *Number System* and *Expressions and Equations* domains in the Common Core State Standards.

A few important mathematical ideas that your child will learn in *Prime Time* are given on the next page. As always, if you have any questions or concerns about this Unit or your child's progress in the class, please feel free to call.

Important Concepts	Examples
Order of Operations The universally agreed upon order for solving math problems. The acronym PEMDAS is used to help remember the order of the steps.	1. Compute any expression within **parentheses.** 2. Compute any **exponent.** 3. Do all **multiplication** and **division** in order from left to right. 4. Do all **addition** and **subtraction** in order from left to right. $(4 + 6) \cdot 2 = (10) \cdot 2$ $= 20$
Distributive Property The Distributive Property shows how a number can be written as two equivalent expressions. A number can be expressed as both a product and a sum. Multiplication is distributed over addition. It can be helpful for understanding the structure of multidigit multiplication.	 $9 \cdot 34 = 9(30 + 4)$ $= 9(30) + 9(4)$ $= 270 + 36$ $= 306$
Prime A number with exactly two factors, 1 and the number itself.	Examples of primes are 11, 17, 53, and 101. The number 1 is not a prime number, since it has only one factor. All of the factors of 11 are 1 and 11. All of the factors of 17 are 1 and 17.
Composite A whole number with factors other than itself and 1 or a whole number that is not prime.	Some composite numbers are 6, 12, 20, and 1,001. Each of these numbers has more than two factors. All of the factors of 6 are 1, 2, 3, 6. All of the factors of 1,001 are 1, 7, 11, 13, 77, 91, 143, and 1001.
Common Multiples A multiple that two or more numbers share. The least common multiple (LCM) of 12 and 18 is 36.	The first few multiples of 5 are 5, 10, 15, 20, 25, 30, 35, 40, 45, 50, 55, 60, 65, and 70. The first few multiples of 7 are 7, 14, 21, 28, 35, 42, 49, 56, 63, 70, 77, 84, and 91. From these lists you can see that two common multiples of 5 and 7 are 35 and 70. There are more common multiples that can be found.
Common Factors A factor that two or more numbers share. The greatest common factor (GCF) of 12 and 18 is 6.	The number 7 is a common factor of 14 and 35 because 7 is a factor of 14 ($14 = 7 \times 2$) and 7 is a factor of 35 ($35 = 7 \times 5$).
Prime Factorization A product of prime numbers, resulting in the desired number. The prime factorization of a number is unique except for the order of the factors. This is the **Fundamental Theorem of Arithmetic.**	 $360 = 2^3 \times 3^2 \times 5$ The prime factorization of 360 is $2 \times 2 \times 2 \times 3 \times 3 \times 5$. Although you can switch the order of the factors, every prime product string for 360 will have three 2s, two 3s, and one 5.