THIRD GRADE MATHEMATICS – Unit 4

Dear Parents,

Your child will be learning about multiplication and division over the course of several units. During this unit, your child will continue to develop an understanding of the meanings of multiplication and division of whole numbers through activities and problems involving equal –sized groups, arrays, and area sized models. He/she will come to understand multiplication as finding an unknown product and division as finding an unknown factor. A variety of equal-sized group situations will be presented to develop the understanding that division can require finding the unknown number of groups or the unknown group size. Strategic practice in order to become fluent with multiplication and division facts will continue throughout this unit.

By the end of Unit 4, students will be expected to be able to solve two-step word problems and choose the equation that represents the situation with a letter standing for the unknown quantity. In Unit 5, students will be expected to solve two-step word problems and write the equation that represents the situation with a letter standing for the unknown quantity.

MULTIPLICATION AND DIVISION

Students need to:

- Use multiplication and division within 100 to solve word problems in situations involving equal groups, arrays, and measurement quantities. Use drawings and equations with a symbol for the unknown number to represent the problem.
- Identify arithmetic patterns (including patterns in the addition and multiplication table) and explain them using properties of operations.
- Interpret whole-number quotients of whole numbers. For example, interpret 56 / 8 as the number of objects in each share when 56 objects are partitioned equally into 8 shares, or as a number of shares when 56 objects are partitioned equally into equal shares of 8 objects each. Describe a context in which a number of shares or a number of groups can be expressed as 56/8
- Solve two-step word problems using the four operations. Represent these problems using equations with a letter for the unknown quantity. Assess reasonableness of answers using mental computation and estimation strategies including rounding.
- Understand division as an unknown-factor problem. For example, find 32/8 by finding the number that makes 32 when multiplied by 8.
- Multiply and divide within 100, using strategies such as the relationship between multiplication and division (e.g. knowing that 8 x 5 = 40, one knows 40/8=5) or properties of operations.

KEY VOCABULARY

***array*:** an arrangement of objects in equal columns and rows

area: the number of square units needed to cover a surface

Commutative Property of Multiplication: a property of multiplication in which the product stays the same when the order of the factors is changed (i.e., a x b = b x a)

***dividend*:** the number being divided

***divisor*:** the number by which a dividend is being divided

***factor*:** the numbers or terms multiplied in an expression. (a factor times a factor equals the product)

***multiple*:** the product when numbers are multiplied together

***partition*:** a division into or distribution in portions or shares

***product*:** the result of multiplying one factor times another factor 8 x 8 = **64**

square unit: a unit for measuring area such as square inch, square centimeter, or square mile

quotient: the result of division 24 ÷ 3 = **8**

WAYS PARENTS CAN HELP

- Refer to the ideas described in the Unit One Parent Letter. They apply to this Unit as well.

- Play Multiplication War. This game is played quite similarly to traditional "war". Arrange the deck by taking out all of the face cards, 9, 8 and 7. This will ensure the facts created will only be those in Set One and Set Two. 1. Shuffle the deck and deal all cards out to the two players. 2. The players each turn over two cards. 3. Each player multiplies the two cards, and says aloud the entire equation- "9 times 2 is 18" instead of just "18". 4. The player with the greater product takes all of the cards. 5. If there is a tie in naming the product, "war" begins. Each player places 3 cards face down, then they turn over two to multiply together. The player with the greater product takes all of the cards on the table. 6. Play ends when either player has all the cards or after an allotted time. The winner is the player with the most cards.

- Play Hit the Target. Remove the face cards from a deck of playing cards. 1. Have one player close his or her eyes and choose one card from the deck. The number on that card is your target. 2. Place the remaining cards face up on the playing surface. 3. All players take turns looking for two cards that you can add, subtract, multiply or divide to get the number on the target card. 4. When a combination is correctly found/stated the player takes the set of cards. 5. If the player is incorrect, he loses a turn. 6. If a player cannot find a combination he passes and is out of the game for that round. Play continues with the next player. 7. Keep playing until no more combinations can be found that equal the target number. 8. Each player receives one point for each pair earned. 9. Repeat the game with a different target number. 10. The winner is the first person to earn ____ points.

Online Activities
http://www.thinkingblocks.com/ *(Solve simple multiplication problems.)*
http://www.fun4thebrain.com/mult.html *(Use the chart below to choose facts appropriate for practice.)*
http://investigations.terc.edu/library/Games_23.cfm#a_multiplication *(Use the chart below to choose facts appropriate for practice.)*

BACKGROUND INFORMATION AND EXAMPLES FOR PARENTS

Vocabulary Resources:
Online Math Dictionary: http://www.amathsdictionaryforkids.com/dictionary.html

Multilingual Dictionary: http://www.glencoe.com/apps/eglossary/landing.php

Finding Area Using Arrays:
http://video.carrollk12.org/view/DONALDSONUSINGARRAYSTOFINDAREA

MULTIPLICATION AND DIVISION FACTS

A systematic approach for developing an understanding of the basic facts will be used. The facts will be broken up into **three sets**, progressing from more easily-learned facts called Foundation Facts to the ones that provide more challenge.

Set One	x 2, x10, x5, x1, x0 & related division facts
Set Two	x 3, x4, x6 & related division facts
Set Three	x 9, x 8, x 7 & related division facts