Grade 3 Unit 2
Beginning Multiplication and Division

MATH FUN

Dear Parents

Welcome to the new school year! We are eager to work with you and your students as we learn new mathematical concepts. Your student's math class is calling for students to be actively engaged in doing math in order to learn math. In the classroom, students will frequently work on tasks and activities to discover and apply mathematical thinking. Students will be expected to explain or justify their answers and to write clearly and properly. Your students will receive a consumable textbook and online access from their teacher.

Concepts Students will Use and Understand
- Multiply and divide within 100, using concrete manipulatives to demonstrate arrays, equal groups and measurement
- Use estimation to determine reasonableness of products and quotients computed
- Understand how to use inverse operations to verify accuracy of computation
- Understand division as an unknown-factor problem. For example, find $32 \div 8$ by finding the number that makes 32 when multiplied by 8.
- Apply 2 of the properties of operations (commutative, associative) as strategies to multiply and divide

Vocabulary

Factors: two or more whole numbers multiplied together to get a given number called the product
Product: the result of multiplication
Array: the arrangement of objects in equal rows. Example:

Quotient: the result of division
Dividend: number being divided; total amount being dividing into groups. Ex. 24 8 =3; 24 is the dividend, 8 is the divisor, and 3 is the quotient.
Divisor: number dividing into the total; may be the number of groups or the number of items in a specific number of groups.
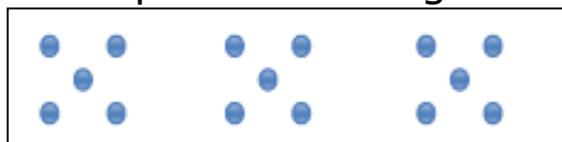**Equal**: having the same value.
Commutative Properties: numbers may be added or multiplied together in any order.
Associative Properties: no matter how the numbers are grouped, the answers will always be the same.

Try http://intermath.coe.uga.edu/dictnary/homepg.asp or http://www.amathsdictionaryforkids.com/ for further examples.

Examples of Strategies of Multiplication

This shows multiplication using grouping with 3 groups of 5 objects and can be written as 3 × 5

Once students understand the concept of repeated addition, they move to understanding how arrays represent multiplication facts.

This grid shows an 8 x 9 array. Students soon recognize that facts can be made up of smaller facts.
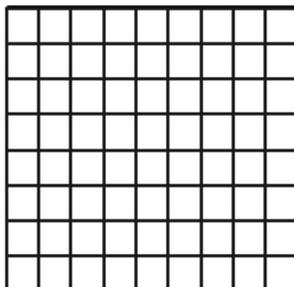
Textbook Online:

connected.mcgraw-hill.com

Ask your teacher for the online passcode

Symbols

+ addition

- subtraction

× or • multiplication

÷ division

Examples of Strategies of Division

The most important division concept is the understanding of equal shares.

$$20 \div 5$$

Students explore division using strategies. One such strategy involves *repeated subtraction*.

$$
\begin{array}{r}
20 \\
- \quad 5 \\
\hline
15 \\
- \quad 5 \\
\hline
10 \\
- \quad 5 \\
\hline
5 \\
- \quad 5 \\
\hline
0
\end{array}
$$

Third graders could use a multiply up strategy. This involves finding the solution to a division problem through multiplication.

$$45 \div 3$$
$$3 \times 10 = 30$$
$$3 \times 5 = 15$$
$$30 + 15 = 45$$

$$10 + 5 = 15 \text{ so, } 3 \times 15 = 45$$

Home Activities:

A Fair Share. Give your child the responsibility of sharing a box of markers, a bag of candy, or a package of baseball cards equally among two, three, or four family members or friends. Remember that it won't always work out equally and it is okay to have remainders.

Break My Eggs. This game can be played with two or more players. Write numbers (0-10) in the holes on the bottom of an empty egg carton. Label one hole BONUS for 10 extra points. Put two manipulatives (marbles, dried beans, etc.) in the egg carton. Close the lid and let your child shake the carton. Using the numbers on which the manipulatives landed, the player multiplies. The answer is the points earned for that turn. If one or both of the manipulatives land on the hole labeled BONUS, add 10 points to the score and shake again. Keep a total of points. Players may play as teams or keep score individually.