**3rd Grade Unit 3 Mathematics**

Dear Parents,

The Common Core State Standards (CCSS), also known in Georgia as the Common Core Georgia Performance Standards (CCGPS), present a balanced approach to mathematics that stresses understanding, fluency, and real world application equally. Know that your child is not learning math the way many of us did in school, so hopefully being more informed about this curriculum will assist you when you help your child at home.

Below you will find the standards from Unit Three in bold print and underlined. Following each standard is an explanation with student examples. Please contact your child’s teacher if you have any questions.

**OA.1 Interpret products of whole numbers, e.g., interpret 5 × 7 as the total number of objects in 5 groups of 7 objects each. *For example, describe a context in which a total number of objects can be expressed as 5 × 7.***

This standard calls for students to understand the concept of multiplication. Students should recognize multiplication as a means to determine the total number of objects when there are a specific number of groups with the same number of objects in each group. Multiplication requires students to think in terms of groups of things rather than individual things. Students learn that the multiplication symbol “×” means “groups of” and problems such as 5 × 7 refer to

5 “groups of” 7.

Example: Jim purchased 5 packages of muffins. Each package contained 3 muffins. How many muffins did Jim purchase? *(5 groups of 3, 5 × 3 = 15 muffins)*

**OA.2 Interpret whole-number quotients of whole numbers, e.g., 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 into equal shares of 8 objects each.**

***For example, describe a context in which a number of shares or a number of groups can be expressed as 56 ÷ 8.***

This standard focuses on two distinct models of division: partition models and measurement models.

Examples:

* Partition models focus on the question, “How many in each group?” There are 12 cookies on the counter. If you are sharing the cookies equally among three children, how many cookies will each child get?
* Measurement models focus on the question, “How many groups can you make?” There are 12 cookies on the counter. If each child gets 3 cookies, how many children can eat cookies?

**OA.3 Use multiplication and division within 100 to solve word problems in situations involving equal groups, arrays, and measurement quantities, e.g., by using drawings and equations with a symbol for the unknown number to represent the problem.**

This standard references various strategies that can be used to solve word problems involving multiplication and division. Students should use a variety of representations for solving word problems.

Examples of multiplication:

* A teacher had 4 rows in her classroom and put 6 desks in each row. How many desks are in her classroom?

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* + - This problem can be solved by drawing an array (rectangular arrangement of equal rows and columns). The student can use this representation to solve the problem showing 4 rows with 6 in each row making a total of 24.
    - This problem can also be solved by drawing pictures of 4 equal groups that contain 6 in each group.

4 groups of 6 equals 24 objects

* + - A student could also reason through the problem mentally by writing an equation. “I know that there are 4 rows with 6 in each row, and I need to know the total number of desks, so I can write the equation 4 x 6 = \_\_\_ to represent the problem. I know that 4 x 6 = 24, so there are 24 desks.” (Third grade students should use a variety of pictures, letters, or symbols, such as stars, boxes, flowers, etc. to represent unknown numbers.)

* + - A number line could also be used to show equal jumps. A student could skip-count to find that 4 jumps of 6 is 24.

**24**

**0**

**6**

**+6**

**+6**

**+6**

**+6**

**12**

**18**

Examples of division:

* *Partition Model Problem—finding the number in each group*

A bag has 36 hair clips. Laura and her three friends want to share them equally. How many hair clips will each person receive?

* + - This problem can be solved by drawing four groups and distributing 36 clips equally to each group. The student can use this representation to solve the problem showing that 4 groups would have 9 in each group for a total of 36. Each friend would receive 9 hairclips.
* *Measurement Model Problem—finding the number of groups*

Max the monkey loves bananas. Molly, his trainer, has 24 bananas. If she gives Max 4 bananas each day, how many days will the bananas last?

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| **Starting** | **Day 1** | **Day 2** | **Day 3** | **Day 4** | **Day 5** | **Day 6** |
| 24 | 24 – 4 = 20 | 20 – 4 = 16 | 16 – 4 = 12 | 12 – 4 =  8 | 8 – 4 =  4 | 4 – 4 =  0 |

* + - This problem can be solved by drawing a table and subtracting 4 from 24 until the student reaches 0. The student must subtract 4 a total of 6 times, so the bananas will last 6 days.

**OA.4 Determine the unknown whole number in a multiplication or division equation relating three whole numbers. *For example, determine the unknown number that makes the equation true in each of the equations 8 × ? = 48, 5 = \_ ÷ 3, 6 × 6 = ?***

This standard goes beyond the traditional notion of *fact families*. Students must explore the inverse relationship between multiplication and division.

Example:

If a student knows that 9 x 8 = 72, then they should also know that 72 ÷ 8 = 9.

The standard also requires that students understand that the equal sign means ”the same as” and use this understanding to interpret an equation with an unknown.

Example:

When given 4 × ? = 32, they might think:

* 4 groups of some number is the same as 32.
* 4 times some number is the same as 32.
* I know that 4 groups of 8 is 32, so the unknown number is 8.
* The missing factor is 8 because 4 times 8 equals 32.

**NBT.3 Multiply one-digit whole numbers by multiples of 10 in the range 10–90 (e.g., 9 × 80, 5 × 60) using strategies based on place value and properties of operations.**

This standard expects that students go beyond tricks that hinder understanding such as “just adding zeros”. Students should explain and reason about their products.

Example:

* To find 60 x 4, a student should think, “4 groups of 6 tens is 24 tens. Twenty-four tens equals 240.”