**3rd Grade Unit 7 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 Seven 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.

**NF.1 Understand a fraction 1/*b* as the quantity formed by 1 part when *a* whole is partitioned into *b* equal parts; understand a fraction *a*/*b* as the quantity formed by *a* parts of size 1/*b*.**

This standard refers to a whole being equally partitioned or split. Fraction models in third grade include area (parts of a whole), models (circles, rectangles, squares), and number lines. Set models (parts of a group) are not introduced in third grade. In the standard NF.1, students should focus on the concept that a fraction is made up (composed) of many pieces of a unit fraction, which has a numerator of 1. For example, the fraction 3/5 is composed of 3 pieces that each have a size of 1/5.

Some important concepts related to developing understanding of fractions include:

* Understand fractional parts must be equal-sized.

|  |  |
| --- | --- |
| ExampleThese are thirds. | Non-ExampleThese are NOT thirds. |

* The number of equal parts tells how many make a whole.
* As the number of equal pieces in the whole increases, the size of the fractional pieces decreases.
* The size of the fractional part is relative to the whole. For example, one-half of a snack-sized candy bar is different than one-half of a king-sized candy bar. The whole is different; therefore, half of each candy bar will be different.
* When a whole is cut into equal parts, the denominator represents the number of equal parts.
* The numerator of a fraction is the count of the number of equal parts.
	+ ¾ means that there are 3 one-fourths.
	+ Students can count *one fourth, two fourths, three fourths.*

**NF.2 Understand a fraction as a number on the number line; represent fractions on a number line diagram.**

**a. Represent a fraction 1/*b* on a number line diagram by defining the interval from 0 to 1 as the whole and partitioning it into *b* equal parts. Recognize that each part has size 1/*b* and that the endpoint of the part based at 0 locates the number 1/*b* on the number line.**

**b. Represent a fraction *a*/*b* on a number line diagram by marking off a** **lengths 1/*b***

**from 0. Recognize that the resulting interval has size *a*/*b* and that its endpoint**

 **locates the number *a*/*b* on the number line.**

The number line diagram is the first time that students work with a number line for numbers that are between whole numbers (e.g., ½ is halfway between 0 and 1).

Example:

In the number line diagram below, the space between 0 and 1 is divided (partitioned) into 4 equal regions. The distance from 0 to the first segment is 1 of the 4 segments from 0 to 1 (), so it is ¼. Similarly, the distance from 0 to the third segment is 3 segments that are each one-fourth long. Therefore, the distance of 3 segments from 0 is the fraction ¾.



**NF.3 Explain equivalence of fractions in special cases, and compare fractions by reasoning about their size.**

An important concept when comparing fractions is to look at the size of the parts and the number of the parts. For example, when looking at two items the same size, 1/8 is smaller than 1/2 because when 1 whole is cut into 8 pieces, the pieces are much smaller than when 1 whole is cut into 2 pieces.

**a. Understand two fractions as equivalent (equal) if they are the same size, or the same point on a number line.**

**b. Recognize and generate simple equivalent fractions, e.g., 1/2 = 2/4, 4/6 = 2/3). Explain why the fractions are equivalent, e.g., by using a visual fraction model.**

These standards call for students to use visual fraction models and number lines to explore the idea of equivalent fractions. Students should only explore equivalent fractions using models, rather than using algorithms or procedures.

Example: Using double number lines, students can easily see equivalent fractions.



**c. Express whole numbers as fractions, and recognize fractions that are equivalent to whole numbers. *Examples: Express 3 in the form 3 = 3/1; recognize that 6/1 = 6; locate 4/4 and 1 at the same point of a number line diagram.***

This standard includes writing whole numbers as fractions. The concept relates to fractions as division problems, where the fraction 3/1 is 3 wholes or 3 divided by 1. This standard is the building block for later work where students divide a set of objects into a specific number of groups. Students must understand the meaning of *a*/1.

**d. Compare two fractions with the same numerator or the same denominator by reasoning about their size. Recognize that comparisons are valid only when the two fractions refer to the same whole. Record the results of comparisons with the symbols >, =, or <, and justify the conclusions, e.g., by using a visual fraction model.**

This standard involves comparing fractions with or without visual fraction models including number lines. Experiences should encourage students to reason about the size of pieces, the fact that 1/3 of a cake is larger than 1/4 of the same cake. Since the same cake (the whole) is split into equal pieces, thirds are larger than fourths.

In this standard, students should also reason that comparisons are only valid if the wholes are identical. For example, 1/2 of a large pizza is a different amount than 1/2 of a small pizza. Students should be given opportunities to discuss and reason about which 1/2 is larger.