Dear Family,

The Grade 3 students are beginning to study Unit 4: Multiplication and Division Applications in Mathematics. Here is a little information about what your student will be learning in this unit. What is the Focus of this Unit?

In this unit, Grade 3 students develop an understanding of the meanings of multiplication and division of whole numbers. Students will apply this understanding in the following areas.

> 1) Representing equals groups and arrays in problem solving situations.
> > a. Students will use a variety of representations for creating and solving one-step word problems.
> > b. They explain and apply properties of operations as strategies for finding their solutions to problems.
> > c. Students will determine the unknown in a multiplication and division equation and understand division as an unknown-factor problem.
> > d. They will encounter the various problem-solving structures in word problems involving multiplication and division
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> 2) Multiplying by multiples of 10s.
> > a. Students will encounter patterns within multiplication and division when using the multiples of 10 and students will extend and explain them in more depth.
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> 3) Problem solving with liquid volume and mass.
> > a. Application of multiplication and division to problems involving both volume and mass.
> 4) Two-step problem solving.
> > a. Students will solve two-step problems involving all four of the operations.

Fluency is also a focus of this unit. By studying patterns and relationships in multiplication facts and relating the operations of multiplication and division, students will build a foundation for fluency with multiplication and division facts. Students will demonstrate fluency with multiplication facts through 10 and the related division facts. Multiplying and dividing fluently refers to the skill of performing these operations accurately (using a reasonable amount of steps and time), flexibility (using strategies such as the distributive property), and efficiently. The expectation is that students will know from memory all products of two one-digit numbers by the end of Grade 3.

How does this look different than what may have been taught in the past before the transition to the New Illinois Learning Standards for Mathematics? In the past, Grade 3 students' focus on multiplication and division was primarily computational and involved rote memorization. Students would practice multiplying and dividing with gradually increasing difficulty; i.e., two-digit by two-digit, two-digit by three-digit multiplication, four-digit division with one-digit

divisors, etc. The New Illinois Learning Standards are more focused upon the meanings of the operations (multiplication and division), and the relationships between area and multiplication. Students will be expected to model their solutions in various modalities: manipulatives, drawings, etc. They have also included a real-world component to the instruction of these standards as students apply multiplication and division into their daily life. How will my student apply what he/she learns in the future? In higher grades, students will multiply and divide with multi-digit numbers and within multi-step problem situations. They will also extend multiplication and division concepts into factors and multiples. Patterns that flow from these operations will be generated and analyzed. Finally, students in higher grades will multiply a fraction by a whole number.

How can you help your student at home? As a parent, you must model the importance of mathematical learning for your child. Take time daily to ask your child what they learned in math at school, asking them to show you their work. Have your child explain their thinking and what they focused on for that particular day, having them share their daily work. Certainly, if your child has homework in this area, please allow a structured, uninterrupted period of time for them to work on any assignments they have been given.

Additional ways to help your child at home could have you looking for everyday opportunities in your own family that may require multiplication or division. Perhaps you are planning a family occasion and it won't occur for 3 more weeks. Use multiplication to determine how many days until your event (3 x 7). When using a specific length of string or yarn, ask your child to help you find how many equal lengths of a specific size could be cut from the overall piece. Something as simple as decorating cookies and counting out the required number of candies so each cookie will have the same number could also involve multiplication.

What are vocabulary terms that will be addressed?
area – the size a surface takes up, measured in square units
remainder – amount left over after dividing a number
unknown – in a math problem, the quantity that is not known
strategies – a plan, method, or way to solve a problem or reach an answer
reasonableness – sensible of an answer
operation – one of the four basic operations in arithmetic used to solve problems (addition, subtraction, multiplication, division)
mass – quantity of matter in an object
gram (g)– standard metric unit of measuring mass (1000 g = 1 kg)
kilogram (kg)- standard metric unit of measuring mass
liter – metric unit of measuring liquid capacity
milliliter (mL) - metric unit of measuring liquid capacity (1000 mL = 1 L)
multiple – product of a whole number and any other whole number

Helpful resources:
Some trade books that may be useful to read with your child and their mathematical focus.

How Many Ants? By Larry Dane Brimner
  Multiples of ten
365 Penguins by Jean-Luc Fromenthal
  Multiplying and arranging 365 penguins into groups
The Best of Times by Greg Tang
  Using logic and creative thinking to multiply
One Grain of Rice: A Mathematical Folktale by Demi
  Multiplication with doubling
The King's Commissioner by Eileen Friedman
  Patterns of multiples of 2s, 5s, and 10s
The Great Divide: A Mathematical Marathon by Dayle Ann Dodds
  Halving/dividing of numbers

Some websites that may prove useful and enjoyable for your child.
* http://www.abcya.com/
* http://www.studyladder.com/
* https://www.scootpad.com/index
* http://gregtangmath.com/
These apps are available for Apple and/or Android.
* Motion Math: Wings
* Kakooma