



### Mathematics

This guide provides a summary of what your child will learn by the end of third grade in mathematics in the state of Kansas. This guide will also give some examples of the mathematics in third grade so you can assist your child. To view the standards in their entirety, please go to: <http://community.ksde.org/Default.aspx?tabid=5276> .

The Mathematics Standards are divided into two sections. The first section is the same for every grade level from Prekindergarten to 12<sup>th</sup> Grade and is described below. They address *how* mathematics is to be taught and *how* the students are to engage with the mathematics. The second section outlines the content to be taught at each grade level. They are *what* students will learn.

### Standards for Mathematical Practice

3<sup>rd</sup>

1. Making sense of problems and persevere in solving them
2. Reason abstractly and quantitatively
3. Construct viable arguments and critique the reasoning of others
4. Model with mathematics
5. Use appropriate tools strategically
6. Attend to precision
7. Look for and make use of structure
8. Look for and express regularity in repeated reasoning.

Your child will be taught skills that will encourage critical thinking and problem solving. Some examples include:

- Teachers will ask students if answers “makes sense” and to expect students to find more than one way to a solution.
- Students will be making sense of word problems. They will create equations for those problems and using symbols appropriately.
- Students will explore similarities and differences between different types of strategies to solve problems.
- Teachers will expect students to use multiple math tools (includes estimation) and explain which tool is more appropriate for a task.
- Students will need to use precise math terms. Example: When working with area they will need to describe square units.
- Students will use the properties of operations in order to solve problems. They will explore the commutative and distributive properties. Example:  $8 \times 7$  can be solved by decomposing the 7 into 5 and 2 and then using the distributive property  $(8 \times 5) + (8 \times 2)$ .

### Content Standards for Mathematics

3<sup>rd</sup>

The specific skills and content your child will be taught come from the content standards. The domains are listed with some examples of the mathematics at the 2<sup>nd</sup> grade level.

#### Operations and Algebraic Thinking:

- Multiply and divide within 100 using mental strategies. (Ex: Doubles; Double & Double Again)
- Solve one and two-step word problems with all operations.

#### Number and Operations in Base Ten:

- Use place value understanding to round to the nearest 10 or 100.
- Using the properties of operations and place value understanding to fluently add or subtract.

#### Number and Operations – Fractions

- Work with fractions using a number line.
- Compare fractions and find equivalent fractions by reasoning about their size.
- Understand the role of the whole and the unit fraction when working with fractions.

#### Measurement and Data:

- Relate area to multiplication arrays.
- Solve problems involving time intervals to the minute.

#### Geometry:

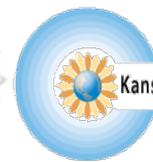
- Understand that shapes in different categories may share similar attributes.

#### Kansas Additions:

Algebraic Patterning – look for patterns in shapes and numbers and be able to describe them.

Probability and Statistics – examine information and create a bar graph, pictograph, or line plot.

# Activities for 3<sup>rd</sup> Graders



3<sup>rd</sup> grade students are expected to be fluent in their multiplication and division facts by the end of 3<sup>rd</sup> grade. They must base this learning on relationships and strategies. Strategies lead to better fluency. You can help your child more fully develop fact fluency by using the following strategies:

- ❖ Encourage your child to decompose the fact into an “easier” fact. Example:  $7 \times 6$  can be a fact that is hard to remember.  $7 \times (5 + 1)$  is then  $(7 \times 5) + (7 \times 1)$  so  $35 + 7 = 42$ .
- ❖ Multiplying by 4 can become quick when your child understands that  $\times 4$  can also be  $\times 2 + \times 2$ . So  $7 \times 4$  becomes  $(7 \times 2) + (7 \times 2)$  and  $14 + 14 = 28$ . (Double & Double Again)

## Mental Computation

3<sup>rd</sup> graders can do mental computation for many types of problems. Challenge your students by asking that the problem be solved mentally. Discuss the strategies that were used when the problem was worked out mentally.

Ask your child to mentally solve this problem:  $227 + 148 = ?$ . Some methods could be:

- ✓ Take 2 from the 227 and move it to the 148 so you have  $225 + 150 = 375$ .
- ✓ Start at 227. Add 100 to get 327. Add 40 to get 367. Then add 8 more to get 375.
- ✓ Start at 227 and add 150 to get 377 and take 2 away to get 375. (Make sure you ask your child why they added 150 since that wasn't in the original problem.)

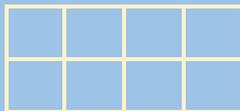
## Fractions

Fractions become more important at this grade level. To assist your child in understanding the fundamentals of fractions, try some of these activities:

- ❖ Understanding unit fractions ( $\frac{1}{2}, \frac{1}{3}, \frac{1}{4}$ ) is important. Help your child learn that all fractions are made up of multiple unit fractions. A candy bar can be divided into 12 equal parts. Make a point of asking your child for 3 of the  $\frac{1}{12}$  pieces and then ask what that fraction would be. How do they know they are correct?
- ❖ Another essential piece in fraction understanding is to determine what the whole is and in making sure all pieces are equal. Hold up a piece of the candy bar and ask what the whole would be for this fractional piece (*the candy bar*). Ask your child to explain why they believe it to be the whole.

## Area and Arrays

Since multiplication will be a focus at this grade level, you will want to assist in helping your child to understand the connection between area and multiplication. An array is used to show both skills.



This array is 2 by 4 and shows the  $2 \times 4$  multiplication fact in visual form. It also shows how an area of 8 square units can be made up of 2 rows and 4 columns. Discuss how arrays and area are related with your child.