Common Core Math in 3rd Grade

Back in the old days, third grade math was all about multiplication. In the Common Core, that's what it is still about!

A key change is that now we want students to apply their multiplication skills to more story problems, as well as connect the multiplication facts to one another. For example, if a child knows their "times fours," that can be used to help recall or figure out their "times eights": Since $3 \times 4 = 12$, then 3×8 must be twice that or 24. Some but not all kids have used these kinds of strategies in the past. Now they will be used widely, and they will all be discussed so the kids who notice these kinds of things learn to not just see it but describe what and why.

Kids will see pictures explaining these connections (see example below). Students will also do multiplication and division together more, rather than seeing them separately. So, for example, soon after students learn that $4 \times 6 = 24$ they'll learn it also means that $24 \div 4 = 6$ and $24 \div 6 = 4$. Kids will also be mastering addition and subtraction in the hundreds. This will mean not only learning the standard way, but figuring out short cuts and alternate approaches and talking about why they work. For many reasons we'd like to see kids see an addition such as $398 + 15$ and not have to "line it up" to add but instead say, "Well, if we give two of the 15 to the 398 that makes 400 so the answer is 413," or, "If we look on the number line, only two steps are needed to get to 400, and then 13 steps more would be 413."

Examples:

Eureka Math: Demonstrating the Commutativity of Multiplication (see reverse)
https://www.engageny.org/resource/grade-3-mathematics-module-1

Here we see third graders using pictures of neatly organized objects called rectangular arrays (or just arrays). In the Common Core, students will begin to use arrays in second grade, so they will already be familiar.

In this worksheet, students use these arrays to see why we get the same amount when we calculate 2 x 6, (that is, two sixes) and 6×2 (that is, six twos). Later they fill in $2 \times 9 = 9 \times$ ____. Here, instead of having two problems to evaluate and get the answer of eighteen, students see these as directly related. This is emphasizing how arithmetic follows rules which eventually become the rules of algebra.

Tips for parents:

- If you practice multiplication facts, try to highlight related facts especially when your child cannot recall one. For example, if they don't remember 6×6 right away, you can ask, "Do you remember 5×6?" If they do, then remind them (if needed) that 6×6 is just six more.

- Be patient with the rectangular arrays and other unfamiliar approaches. No method is perfect, but for many students and teachers their use has already proven to be more effective than what we were doing in the past.

- It should be fine to show your child the standard "line them up" ways to add and subtract (and they will see them in class too!) but realize that they may need to provide an alternate approach, especially when the standard way isn't as efficient as some meaningful shortcut.

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For further information see:
ime.math.arizona.edu/progressions
and illustrativemathematics.org

Example: Demonstrating the Commutativity of Multiplication, Eureka Math Module 1 Lesson 7 (excerpt)

1. a. Count by 2 six times.

_____, _____, _____, _____, _____, _____

b. Draw an array that matches your count-by.

c. Write a multiplication sentence that represents the total number of objects in your array.

_____ × _____ = _____

2. a. Count by 6 two times.

_____, _____

b. Draw an array that matches your count-by.

c. Write a multiplication sentence that represents the total number of objects in your array.

_____ × _____ = _____

3. a. Compare your work in Problems 1 and 2. Turn your paper as you study the arrays to look at them in different ways.

b. Why are the factors in your multiplication sentences in a different order?

Write and solve a different multiplication sentence to describe each array.

_____

_____