Common Core Math in 2nd Grade

Second graders will continue building an understanding of the way our number system works using place values of ones, tens, hundreds, etc. They'll recognize that the 3 in the number 357 represents 3 hundreds rather than "just being a three" and that 12 tens is the same as 1 hundred and 2 tens. Later this will make it clear that adding two hundreds (or 200) to 357 is just a matter of adding 2 to the 3 in the hundreds place.

Children will work on skip counting by various numbers including tens and hundreds both to increase skill for addition and subtraction using these place values but also as a foundation for multiplication. This can be connected to the clock because in second grade they will be reading time to the nearest five minutes.

While second graders will continue to use many different strategies for adding and subtracting, they use their understanding of the way numbers are built to move toward methods that will always work quickly and accurately.

Second grade measurement concepts reinforce this number sense, provide real world contexts, and give a good foundation for understanding more advanced concepts. For instance, you'll notice that students work with measuring lengths. They might add two different lengths together or compare the lengths of two objects (which would require subtraction). Using bar graphs, clocks, or money they might practice these same skills. In second grade they also do things like partition rectangles into squares and other equal shapes in preparation for understanding both multiplication and fractions.

Examples:

Bundling and Unbundling https://www.illustrativemathematics.org/illustrations/144 (see reverse)

The following math problem asks students to break apart numbers in a variety of different ways. For example, children apart the number 14 tens into 10 tens and 4 tens. They then recognize that the group of 10 tens can be "bundled" into a group of 1 hundred. This is what they will need to understand in order to add something like 152 + 91 using the standard method, where we line up the ones and the tens and the hundreds and add in columns. Adding 2 and 1 in the ones place is straightforward, but when 5 and 9 are added in the tens place, the resulting 14 will have to be regrouped (or "carried"). Understanding this regrouping relies on the ability to combine tens into hundreds.

Tips for parents:

- Practice in everyday situations by, for example, asking your child to compare the price of two different items and decide how much you would save by buying one of them. Count by 2's, 5's, 10's, etc. to figure out how many there are of something rather than counting one at a time.
- You may find that there are methods of writing basic arithmetic that are unfamiliar to you. Often, these are just ways of recording more of the thinking that goes into the math. Try to understand the process yourself, checking in with the teacher if need be. Wait to share the methods you learned until either the class is covering them or you are able to also explain the thinking around them.
- Have your child explain how she found an answer using words or pictures, even if the process is easy for her.

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

Example: Bundling and Unbundling

https://www.illustrativemathematics.org/illustrations/144

Make true equations. Write one number in every space. Draw a picture if it helps.

a. 1 hundred + 4 tens = _____ ; 4 tens + 1 hundred = _____
b. 14 tens = 10 tens + ____ tens ; 14 tens = ____ hundred + 4 tens ; 14 tens = ____ ones
c. 7 ones + 5 hundreds = _____
d. 8 hundreds = _____
e. 106 = 1 hundred + ____tens + ____ones ; 106 = ____tens + ____ones ; 106 = ____ones
f. 90 + 300 + 4 = _____

Commentary:

Students determine the number of hundreds, tens and ones that are necessary to write equations when some digits are provided. Student must, in some cases, decompose hundreds to tens and tens to ones. The order of the summands does not always correspond to the place value, making these problems less routine than they might be.

Solutions:

a. 140, 140
The first problem asks for the same number (140) in different ways. This emphasizes that order doesn't matter in addition — yet order is everything when using place-value notation.

b. 14 tens = 10 tens + 4 tens 14 tens = 1 hundred+4 tens 14 tens = 140
In this problem, the base-ten units in 140 are bundled in different ways. In the first line, "tens" are thought of as units: 14 things = 10 things + 4 things.

c. 507
By scrambling the usual order, the third problem requires students to link the values of the parts with the order of the digits in the positional system. Also, to encode the quantity, the student will have to think: "no tens," emphasizing the role of 0. 7 ones + 5 hundreds = 507.

d. 800
In the fourth problem, the zeros come with a silent "no tens and no ones": 8 hundreds = 800.

e. 106 = 1 hundred + 0 tens + 6 ones 106 = 10 tens + 6 ones 106 = 106 ones
In this problem, the base-ten units in 106 are bundled in different ways. This is helpful when learning how to subtract in a problem like 106 – 34 by thinking about 106 as 100 tens and 6 ones.

f. 394
The sixth problem is meant to illustrate the notion that if the order is always given "correctly," then all we do is teach students rote strategies without thinking about the size of the units or how to encode them in positional notation. 90 + 300 + 4 = 394.

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