Subtracting Numbers
Parents' Guide

Teaching Mathematics That Makes Sense

Subtraction

Students often learn how to subtract numbers one way – by "borrowing" or "trading." Yet, there are many ways to think about how to subtract numbers.

Think about how you learned to subtract, or "take away."

$$\begin{array}{r} 1,000 \\ -\ 376 \\ \hline \end{array}$$

You probably were taught that you couldn't take 6 from 0 (which you can – it's called negative 6) so you needed to borrow. Since you "can't" borrow from 0, you have to borrow from the 1 in the thousands place and so on. Your work probably looked something like:

$$\begin{array}{r} \overset{9\ 9}{\cancel{1},\overset{1}{\cancel{0}}\cancel{0}\cancel{0}} \\ -\ 376 \\ \hline 624 \end{array}$$
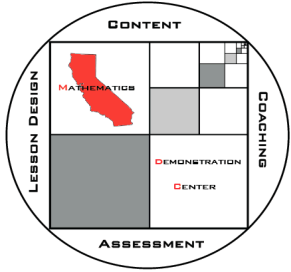
Although this works it is not very efficient and there are many places where students make errors. Also, some students can do it but don't really understand what they are doing or conceptually understand subtraction.

Breaking up numbers **(decomposition)** helps students build number sense – one of the most important things for students to learn to be successful in higher mathematics. If students understand the concept of decomposition they wouldn't have to "borrow" when doing such a subtraction problem. One way to use decomposition to subtract is:

Decomposition

$$\begin{array}{r} 1,000 \\ -\ 376 \\ \hline \end{array} = \begin{array}{r} 999+1 \\ -\ 376 \\ \hline = 623+1 \\ = 624 \end{array}$$

By decomposing 1,000 to 999 + 1 it makes it easy to subtract 376 from 999 and then add the one back.
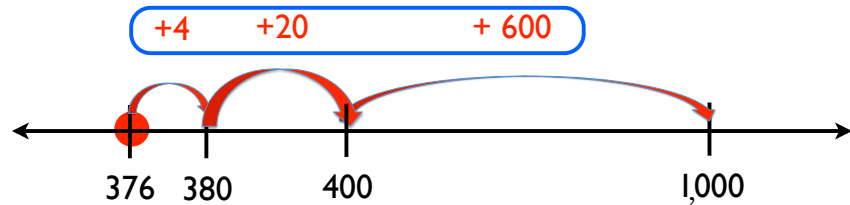
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Visualizing Subtraction on a Number Line

Another way to subtract is to visualize the **difference** (the answer to a subtraction problem) on a number line. This also reinforces the vocabulary and helps students see the difference. One way to visualize the difference is to "jump" along on a number line:

There are many ways to jump along on the number line from 376 to 1,000.

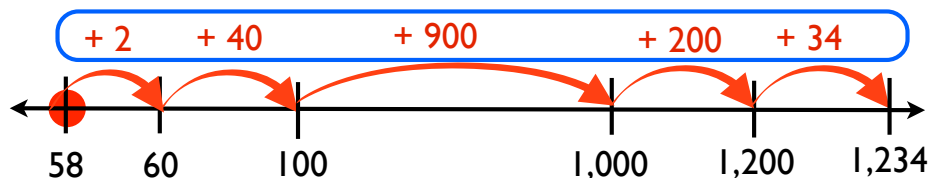## Another Example of Subtraction by Decomposition and Using a Number Line

Find the difference of 1,234 and 58.

$$\begin{array}{r} 1,234 \\ -\ \ 58 \\ \hline \end{array}$$

Decomposition:

$$1,234 = 1,000 + 200 + 30 + 4$$
$$-\ 58\ = \underline{\qquad\ -50\ -\ 8\ \qquad}$$
$$= 1,000 + 150 + 22 + 4$$
$$= 1,000 + 100 + 50 + 20 + 2 + 4$$
$$= 1,000 + 100 + 70 + 6$$
$$= 1,176$$

Number Line:

Try some other problems – it can be fun!

CMDC   01/25/12