

Regrouping in Subtraction

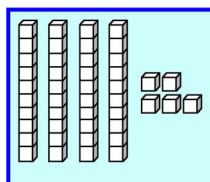
This is a complete lesson about how to teach regrouping in subtraction (borrowing) step-by-step with 2-digit numbers, meant for 2nd grade. The lesson contains a teaching video, instruction with visual models, and many exercises.

In [this video](#), I explain an idea of breaking down the concept of regrouping (borrowing) so that students can see what actually happens in it. For example, to subtract $52 - 38$, we write 52 as $50 + 2$ (breaking it down into its tens and ones). Then, regrouping means that $50 + 2$ becomes $40 + 12$. This makes the process totally transparent.

We will now study regrouping (also called "borrowing") in subtraction.

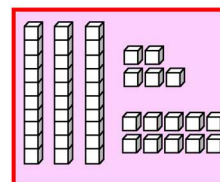
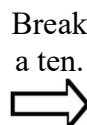
As a first step, we study breaking a ten-pillar into ten little cubes.

This is called **regrouping**, because one ten "changes groups" from the tens group into the ones.



4 tens 5 ones

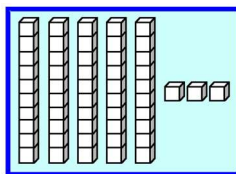
First we have 45. We "break" one ten-pillar into little cubes.



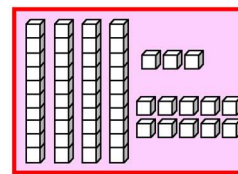
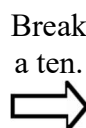
3 tens 15 ones

Now we have 3 tens and 15 ones. It is still 45, but written in a different way.

Here is another example. First we have 5 tens 3 ones. We "break" one ten-pillar into 10 little cubes. We end up with 4 tens 13 ones.



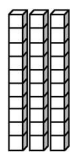
5 tens 3 ones



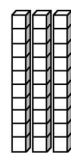
4 tens 13 ones

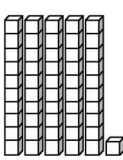
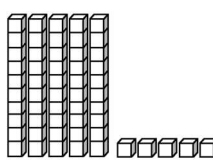
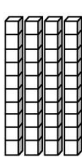
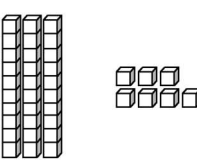
1. Break a ten into 10 ones. What do you get? Draw or use manipulatives to help.

a.



b.

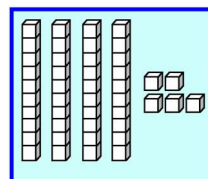


3 tens 0 ones $\rightarrow$ ___ tens ___ ones	___ tens ___ ones $\rightarrow$ ___ tens ___ ones
c.  $\rightarrow$	d.  $\rightarrow$
___ tens ___ ones $\rightarrow$ ___ tens ___ ones	___ tens ___ ones $\rightarrow$ ___ tens ___ ones
e.  $\rightarrow$	f.  $\rightarrow$
___ tens ___ ones $\rightarrow$ ___ tens ___ ones	___ tens ___ ones $\rightarrow$ ___ tens ___ ones

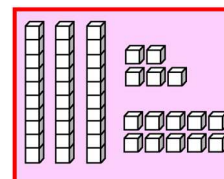
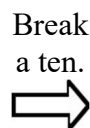
Let's study subtraction. The pictures on the right illustrate $45 - 17$.

First, a ten is broken into 10 ones.
So, 4 tens 5 ones becomes 3 tens 15 ones.

After that, cross out (subtract)
1 ten 7 ones.



4 tens 5 ones



3 tens 15 ones

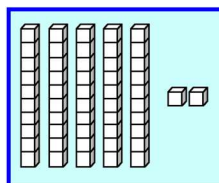
Cross out 1 ten 7 ones (from the *second* picture).

What is left? ___ tens ___ ones

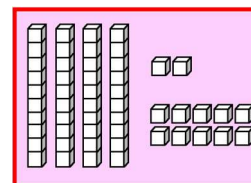
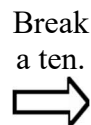
The pictures on the right illustrate $52 - 39$.

First, a ten is broken into 10 ones.
So, 5 tens 2 ones becomes 4 tens 12 ones.

After that, cross out (subtract)
3 tens 9 ones.



5 tens 2 ones

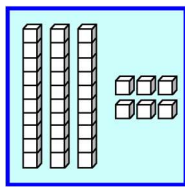


4 tens 12 ones

Cross out 3 tens 9 ones (from the *second* picture).

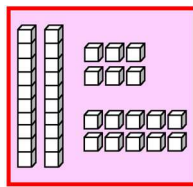
What is left? ___ tens ___ ones

2. Fill in. Always subtract (cross out some) from the *second* picture.



3 tens 6 ones

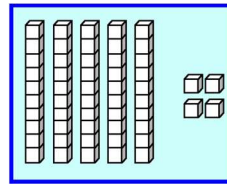
Break
a ten.



2 tens 16 ones

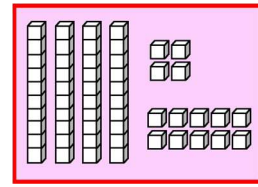
a. Subtract 8 ones (from the *second* picture).

What is left? ____ tens ____ ones



____ tens ____ ones

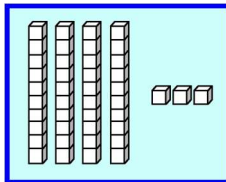
Break
a ten.



____ tens ____ ones

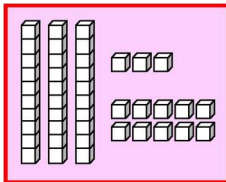
b. Subtract 2 tens 7 ones.

What is left? ____ tens ____ ones



____ tens ____ ones

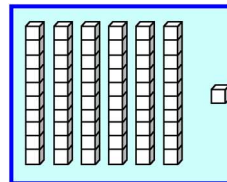
Brea
k
a ten.



____ tens ____ ones

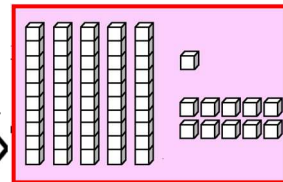
c. Cross out 2 tens 5 ones.

What is left? ____ tens ____ ones



____ tens ____ ones

Brea
k
a ten.



____ tens ____ ones

d. Cross out 4 tens 4 ones.

What is left? ____ tens ____ ones

3. First, break a ten. Then subtract ones and tens separately. Look at the example.

a.

$$\begin{array}{r}
 5 \text{ tens } 5 \text{ ones} \\
 - 3 \text{ tens } 7 \text{ ones} \\
 \hline
 1 \text{ ten } 8 \text{ ones}
 \end{array}$$

b.

$$\begin{array}{r}
 7 \text{ tens } 2 \text{ ones} \\
 - 3 \text{ tens } 5 \text{ ones} \\
 \hline
 \quad \text{ tens } \quad \text{ ones}
 \end{array}$$

c. $ \begin{array}{r} 6 \text{ tens } 0 \text{ ones} \Rightarrow \boxed{} \text{ tens } \boxed{} \text{ ones} \\ - \quad 2 \text{ tens } 7 \text{ ones} \\ \hline \boxed{} \text{ tens } \boxed{} \text{ ones} \end{array} $	d. $ \begin{array}{r} 6 \text{ tens } 4 \text{ ones} \Rightarrow \boxed{} \text{ tens } \boxed{} \text{ ones} \\ - \quad 3 \text{ tens } 8 \text{ ones} \\ \hline \boxed{} \text{ tens } \boxed{} \text{ ones} \end{array} $
e. $ \begin{array}{r} 7 \text{ tens } 6 \text{ ones} \Rightarrow \boxed{} \text{ tens } \boxed{} \text{ ones} \\ - \quad 4 \text{ tens } 7 \text{ ones} \\ \hline \boxed{} \text{ tens } \boxed{} \text{ ones} \end{array} $	f. $ \begin{array}{r} 5 \text{ tens } 0 \text{ ones} \Rightarrow \boxed{} \text{ tens } \boxed{} \text{ ones} \\ - \quad 2 \text{ tens } 2 \text{ ones} \\ \hline \boxed{} \text{ tens } \boxed{} \text{ ones} \end{array} $
g. $ \begin{array}{r} 8 \text{ tens } 1 \text{ one} \Rightarrow \boxed{} \text{ tens } \boxed{} \text{ ones} \\ - \quad 6 \text{ tens } 5 \text{ ones} \\ \hline \boxed{} \text{ tens } \boxed{} \text{ ones} \end{array} $	h. $ \begin{array}{r} 6 \text{ tens } 3 \text{ ones} \Rightarrow \boxed{} \text{ tens } \boxed{} \text{ ones} \\ - \quad 2 \text{ tens } 8 \text{ ones} \\ \hline \boxed{} \text{ tens } \boxed{} \text{ ones} \end{array} $

4. Jessica had 27 colored pencils and her brother and sister had none. Then Jessica gave 10 of them to her brother, and four to her sister.

- How many pencils does Jessica have now?
- How many more pencils does Jessica have than her brother?
- How many more pencils does Jessica have than her sister?