Dimensions Math
Grade 3 Letter Home
Chapter 3 Addition and Subtraction - Part 2

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Home Connection

In this chapter, your child will extend their knowledge of the addition and subtraction vertical algorithm. During class students will use place-value discs to enrich their conceptual understanding of the algorithm as they gain procedural fluency. A sample demonstration of the **addition algorithm** with place-value discs for four-digit numbers is shown here.

9 ones + 2 ones = 11 ones

Regroup 11 ones as 1 ten and 1 one.

$$\begin{array}{r} 2,652 \\ +1,749 \\ \hline \end{array}$$

Write the digit 1 at the top of the tens column denoting the regrouped 10 ones, and the digit 1 below the line in the ones column.

$$\begin{array}{r} 1 \\ 2,652 \\ +1,749 \\ \hline 1 \end{array}$$

Add the tens, including any regrouped tens:
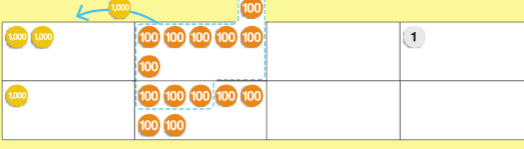
5 tens + 4 tens + 1 ten = 10 tens

Regroup 10 tens as 1 hundred and 0 tens.

Write the digit 1 at the top of the hundreds column denoting the regrouped 10 tens, and the digit 0 below the line in the tens column.

$$\begin{array}{r} 11 \\ 2,652 \\ +1,749 \\ \hline 01 \end{array}$$

Continued

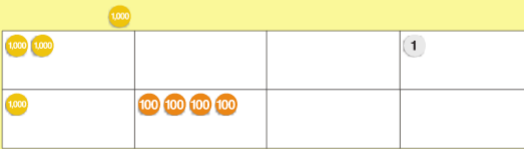Add the hundreds, including any regrouped hundreds:

6 hundreds + 7 hundreds + 1 hundred = 14 hundreds

Regroup 10 hundreds as 1 thousand and 4 hundreds.

Write the digit 1 at the top of the thousands column denoting the regrouped 10 hundreds, and 4 below the line in the hundreds column.

$$\begin{array}{r} 111 \\ 2,652 \\ +1,749 \\ \hline 401 \end{array}$$

Add the thousands, including any regrouped thousands:

2 thousands + 1 thousand + 1 thousand = 4 thousands

Write the digit 4 below the line in the hundreds column.

2,652 + 1,749 = 4,401

As with addition, students will use the place-value discs while learning the **subtraction algorithm.**

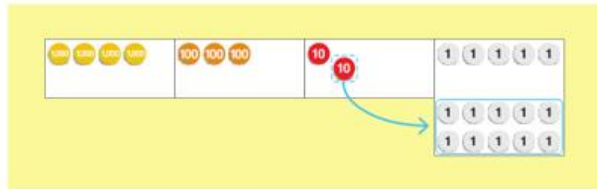Begin with the whole represented on a place-value organizer.

Subtract the ones:

There are not enough ones to subtract 8 ones.

Regroup 1 ten as 10 ones.

$$\begin{array}{r} 4,325 \\ -2,468 \\ \hline \end{array}$$

Cross off the digit 2 in the tens place and write a 1 above it.

Cross off the digit 5 in the ones place and write 15 above it.

There are now 15 ones.

15 ones − 8 ones = 7 ones.

Write the difference of 7 ones below the line in the ones column.

$$\begin{array}{r} {}^{1\,15} \\ 4,3\cancel{2}\cancel{5} \\ -2,468 \\ \hline 7 \end{array}$$

Subtract the tens:

There are not enough tens to subtract 6 tens.

Regroup 1 hundred as 10 tens.
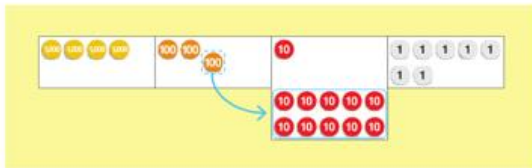
Cross off the digit 3 in the hundreds place and write a 2 above it.

Write the 11 in the tens place to represent the 11 tens.

11 tens − 6 tens = 5 tens. Write difference of 5 tens below the line in the tens place.

$$\begin{array}{r} {}^{2\,11\,15} \\ 4,\cancel{3}\cancel{2}\cancel{5} \\ -2,468 \\ \hline 57 \end{array}$$

Continued

Subtract the hundreds:

There are not enough hundreds to subtract 4 hundreds.

Regroup 1 thousand as 10 hundreds.
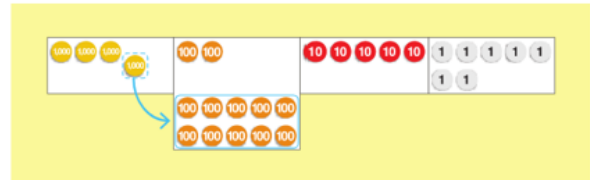
Cross off the digit 4 in the thousands place and write a 3 above it.

Write 12 in the hundreds place to represent the 12 hundreds.

12 hundreds − 4 hundreds = 8 hundreds

Write the difference of 8 hundreds below the line in the hundreds place.

$$\begin{array}{r} {}^{3\,12\,11\,15} \\ \cancel{4}\cancel{3}\cancel{2}\cancel{5} \\ -2,468 \\ \hline 857 \end{array}$$

Subtract the thousands:

3 thousand − 2 thousand = 1 thousand

Write the difference of 1 thousand below the line in the thousands place.

Students should have one 1,000-disc, eight 100-discs, five 10-discs, and seven 1-discs on their place-value organizers.

They can check their work by adding the two parts together:

$$\begin{array}{r} {}^{3\,12\,11\,15} \\ \cancel{4}\cancel{3}\cancel{2}\cancel{5} \\ -2,468 \\ \hline 1,857 \end{array}$$

$$\begin{array}{rl} 4,3\,2\,5 & \text{whole} \\ -2,4\,6\,8 & \text{part} \\ \hline 1,8\,5\,7 & \text{part} \end{array} \qquad \begin{array}{rl} 1,8\,5\,7 & \text{part} \\ +2,4\,6\,8 & \text{part} \\ \hline 4,3\,2\,5 & \text{whole} \end{array}$$

When practicing the addition and subtraction processes, avoid using the terms "carrying" or "borrowing" as it can lead to confusion about place value and does not help students understand regrouping. It is also helpful to emphasize the place being regrouped to or from. For example: Regroup 1 **thousand** as 10 **hundreds**.

During this chapter, students will also be shown two different rounding strategies in order to estimate an answer.

1. Students can round each number to the greatest place for both numbers. For example:

OR

2. Students can round both numbers to the greatest place for the lesser number. For example:

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4,275 – 696
   ↓      ↓
4,000 – 700 = 3,300
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4,275 – 696
   ↓      ↓
4,300 – 700 = 3,600
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What can we do at home?

Automatic recall of math facts to 20 is critical for students' ability to successfully use the addition and subtraction algorithms. At this point in third grade students should have mastered addition and subtraction to 20 and multiplication and division of 2, 3, 4, 5, and 10. Here is a fun card game for daily addition and subtraction practice:

Last Out
Materials: deck of playing cards with the face cards removed
- This game can be played with 2 to 5 players
- Deal each player 5 cards. Flip the top card face-up to start the pile.
  - Red cards are subtraction cards
  - Black cards are addition cards
- Player One lays down a card and adds or subtracts that number on their card. They then draw another card.
- Player Two lays down a card and adds or subtracts that number on their card. They then draw another card.
- Play continues but may not go above the number 20 or below zero. If a player cannot play any card in their hand, they are out. The last player to go out, wins.

For Example:
- The start card is 5.
- Player One lays down a black 8, they say 5 plus 8 is 13.
- Player Two lays a black 1 and say 13 plus 1 is 14.

A video of how to play can be found in the Elementary Parent Resources folder on our TCA Website under the "Parents/Students" tab.