Lesson 5: Adding Within 1000

Getting Started

Big Ideas

- What strategies can we use to add and subtract?
- How does place value work?

Facts and Definitions

- **Multiples of 100**: 100, 200, 300, 400, 500, 600, 700, 800, 900

Skills

- Add and subtract within 1000
- Read and write numbers to 1000

Materials

- ✓ abacus (kit)
- ✓ calculator* (Activity 4 - optional)
- ✓ fine point dry-erase marker (kit)
- ✓ place value cards (kit)
- ✓ base-10 blocks (kit)
- ✓ deck of cards (kit)
- ✓ laminated grid paper (kit)
- ✓ whiteboard (kit)

Introduction

Using the number generator at the following web link, set the generator to create one number between 100 and 900. Once your child is given the number, he will do the following with it:

- Add 10
- Add 100
- Subtract 10
- Subtract 100

Random Number Generator
www.movingbeyondthepage.com/link/8314
https://www.movingbeyondthepage.com/online/content/random-number-generator.aspx

Ask your child to repeat this process four more times.

Activities

Activity 1: Adding Multiples of 100

Write the following numbers on the whiteboard: 60, 20, 30, 90, 40, and 70. Ask, "What do these numbers have in common?" and "What do we call these numbers?" Make sure that your child understands that we call these "multiples of 10." Now, write these numbers on the whiteboard: 600, 200, 300, 900, 400, and 700. Ask, "If we call the first numbers I wrote 'multiples of 10,' what do you think we call these numbers?" (**multiples of 100**) Also, ask, "Can you think of any more multiples of 100?" (100, 500, 800) Point to 600, and say, "This means 6 hundreds, right?"

Now, write 400+300 on the whiteboard, and ask, "What do you think the sum of these numbers is? If we add 4 hundreds to 3 hundreds, how many hundreds do we have?" Your child should see that you have 7 hundreds. Finish the addition sentence on the whiteboard by writing the sum 700. Give your child the base-10 blocks, and ask him to show the addition

using the blocks. He should show 4 hundred flats and then add 3 more hundred flats for a total of 7 hundred flats.

Say, "Adding multiples of 100 is the same as adding multiples of 10, but instead we're working with the hundreds place." Write the following on the whiteboard: 572+300. Say, "As you look at this addition sentence, what do you notice about the ones and tens places?" Help your child see that the numbers in them will remain the same because zero is being added to them. Ask, "What place is changing?" (the hundreds place) and "How many hundreds are being added together?" (5 and 3) Allow your child to find the sum using the base-10 blocks. He should begin by showing 572 (5 hundreds flats, 7 ten rods, 2 unit blocks) and adding 3 more hundreds flats, for a sum of 872.

Your child will complete the "Adding Multiples of 100" sheet. Encourage him to try to solve the problems mentally and then allow him to use the base-10 blocks to check the sums.

"Adding Multiples of 100" Answer Key

300 + 600 = **900**	477 + 400 = **877**
500 + 200 = **700**	400 + 595 = **995**
345 + 200 = **545**	200 + 665 = **865**
600 + 192 = **792**	178 + 600 = **778**
567 + 300 = **867**	265 + 700 = **965**

Activity 2: Adding Big Numbers on the Abacus

Tell your child to show the following numbers on the abacus (Side 2): 291, 945, 460, and 505.

Now, give your child the ones, tens, and 100, 200, 300, and 400 place value cards, and ask him to create 2 three-digit numbers. Once he has the numbers, ask him to tell you as much as he can about them (for example, odd or even, the digit in each place, the value of the digits). Give him the abacus, and say, "You know how to use the abacus to add two-digit numbers. I wonder if you can also use it to add three-digit numbers." Give him a chance to try using the abacus to add his two numbers together. If needed, tell him to enter one of the numbers first and then add the other, beginning with the ones place. Remind him that he'll need to compose 10 and regroup when the wires for a place have more than 9 beads.

Write the following addition sentences vertically (top to bottom) on the whiteboard, and ask your child to use the abacus to find the sums:

- 631+218 (849)
- 308+410 (718)
- 548+124 (672)

Once your child has found the sums, ask him to read the addition sentences aloud (for example, "six hundred thirty-one plus two hundred eighteen equals eight hundred forty-nine").

Activity 3: Three-Digit Addition Practice

Write the following addition sentence vertically (top to bottom) on the laminated grid paper, and ask your child to solve it without using the abacus or base-10 blocks: 35+47. Remind him that he already knows how to add two-digit numbers on paper and that he can use expanded form if he wants to. He should find a sum of 82. Ask, "Why did you have to compose 10 and regroup?" Make sure that he understands the necessity of regrouping when digits in a place add up to more than nine. If needed, talk about the steps in the process of adding these numbers on paper:

- What is 5 plus 7? (12)
- 12 is composed of 10 and 2, so I add another 10 or carry a 10 to the tens place and write the 2 in the ones place.
- Now, in the tens place, I add 1 and 3 and 4, to get a sum of 8 and write 8 in the tens place.
- I found that 35 plus 47 equals 82, and I had to regroup and carry because 5 plus 7 in the ones place was greater than 9.

Now, write 321+434 vertically (top to bottom) on the laminated grid paper, and tell your child to find the sum. Ask, "Which place should you begin adding?" (the ones place) He should find a sum of 755. Show him how to use expanded form to add the numbers, too, by writing 300+20+1 to the side of 321 and 400+30+4 to the side of 434. Now, add each place beginning with the ones, saying, "I can add my ones together to find a sum of 5 ones. Then, I can add the tens together for a sum of 50. Finally, I can add the hundreds together for a sum of 700. What number is 700+50+5?" (755)

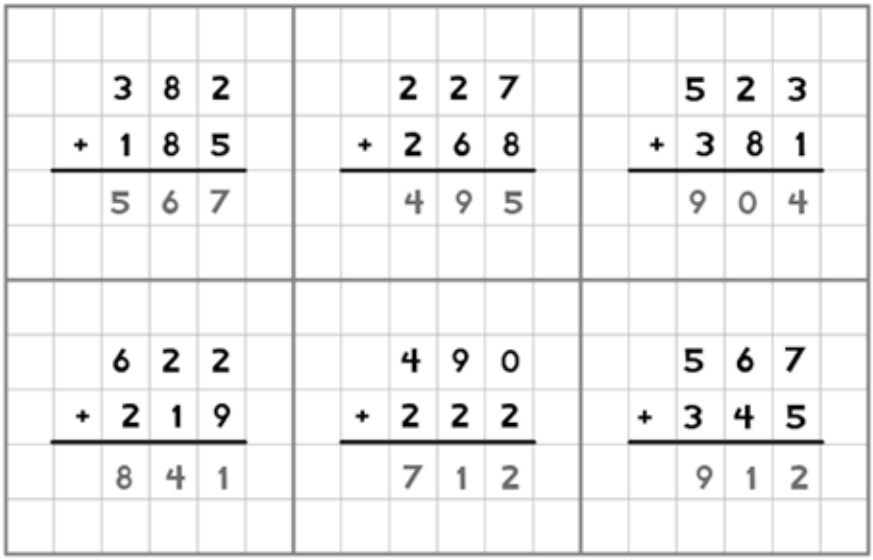
Say, "You know how to compose 10, regroup, and carry when you add two-digit numbers, so let's see if you can do this on paper with three-digit numbers." Write 657+274 vertically on the laminated grid paper, and give your child time to try to work through the problem. Remind him that he must begin by adding the ones place first, and tell him to be sure to write the number he carries above the correct place (for example, above the tens place or the hundreds place). If needed, pose the following types of questions as he works:

- What is 7 plus 4?
- Do you need to regroup and carry a number to the tens place? Why?
- What numbers are you adding in the tens place?
- Do you need to regroup and carry a number to the hundreds place? Why?
- What numbers are you adding in the hundreds place?
- What is the final sum? (931)

Allow your child to check the sum using the abacus by showing 657 first on it and then adding 274, exchanging 10 beads in the ones place for a ten (leaving 1 in the ones place) and then exchanging 10 beads in the tens place for a hundred (leaving 3 in the tens place). If he needs additional practice with adding three-digit numbers and exchanging on the abacus, ask him to find the sum for the following using the abacus: 478+244 (722). He should first show 478. Then, he should add 244 and exchange 10 of the ones beads for a ten bead, leaving 2 ones beads. Next, he'll exchange 10 ten beads for 1 hundred bead, leaving 2 in the tens place and 7 in the hundreds place.

Next, give him the "Adding Three-Digit Numbers" sheet. He will find the sums on paper first and then will check them using the abacus. Allow him to use the whiteboard and dry-erase marker if needed as he works.

"Adding Three-Digit Numbers" Answer Key



Activity 4: Close Call Addition Game

This game is a more challenging version of the Close Call game that your child had the option of playing for the Unit 4 Final Project Think-Tac-Toe. This time, the game focuses on adding three-digit numbers rather than two-digit numbers.

The game requires the "Close Call Addition Score Card" sheets and a deck of cards with the face cards and tens removed. Aces are 1s, and jokers are 0s. The goal is to make an addition sentence that gets as close as possible to 1000 without going over 1000. To play, shuffle the cards, and select a dealer. The dealer will give each player 8 cards. Each player will choose 6 cards from his 8 cards to create 2 three-digit numbers whose sum is close to 1000. Then, he will write his addition sentence on his score card. The player with the higher sum (without going over 1000) wins the round and earns a point. The winner will circle his sum for that round to show that he won the point. Play continues with additional rounds, and the player who reaches 5 points first is the winner.

As you play, allow your child to use base-10 blocks, the abacus, the laminated grid paper, and dry-erase markers as needed to find sums. He can also check the sums using a calculator. Also, as you add your numbers, talk aloud about the strategies you're using so that he can hear your process. For example, you might say, "I need to begin adding here in the ones place, and I'll need to carry to the tens place because the numbers here in the ones place add up to more than nine." You can also share how you're deciding which numbers to add to get close to 1000. This "thinking aloud" will help your child develop his own strategies for playing this game.

Wrapping Up

Give your child time to play the subtraction game at the following web link. Allow him to use the materials of his choosing to solve the problems as he plays. Ask him to read the instructions before he begins. He can also play a practice game first if he would like.

Math Man
www.movingbeyondthepage.com/link/8008
http://www.sheppardsoftware.com/mathgames/mathman/mathman_subtraction100.htm

ADDING MULTIPLES OF 100

300 + 600 = ☐

500 + 200 = ☐

345 + 200 = ☐

600 + 192 = ☐

567 + 300 = ☐

477 + 400 = ☐

400 + 595 = ☐

200 + 665 = ☐

178 + 600 = ☐

265 + 700 = ☐

Adding Three-Digit Numbers

382 + 185	227 + 268	523 + 381
622 + 219	490 + 222	567 + 345

Close Call Addition Score Card

Round	Number Sentence	Sum
1		
2		
3		
4		
5		
6		
7		
8		
9		
10		

Close Call Addition Score Card

Round	Number Sentence	Sum
1		
2		
3		
4		
5		
6		
7		
8		
9		
10		