

MATH LEVEL 1
LESSON PLAN 2
ADDITION

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Section 1: Adding by Arithmetic

1. In Arithmetic we learn about numbers and how to add, subtract, multiply and divide them by using number sense. The word ARITHMETIC literally means “number skill.”

Here is a “number skill” to find the sum of 97 and 64.

1. Imagine two stacks of 97 and 64 pennies.
2. Transfer 3 pennies from the 64-penny stack to 97-penny stack.
3. You now have two stacks of 100 and 61 pennies
4. We can add this quickly as 161 pennies.
5. Therefore, the sum of 97 and 64 is 161.



2. One learns many such skills in Arithmetic. We take advantage of the fact that it is easy to add a number to ZERO, TEN or HUNDRED. Check out the following additions:

$$0 + 3 = 3;$$

$$10 + 5 = 15;$$

$$20 + 7 = 27;$$

$$50 + 2 = 52;$$

$$70 + 9 = 79$$

$$90 + 4 = 94$$

Section 2: The Next TEN

3. The next TEN for a number occurs just when the TEN's digit increases by one. For example.

The next Ten for 7 is 10

The next Ten for 17 is 20

The next Ten for 57 is 60

The next Ten for 83 is 90.

☺ **EXERCISE**

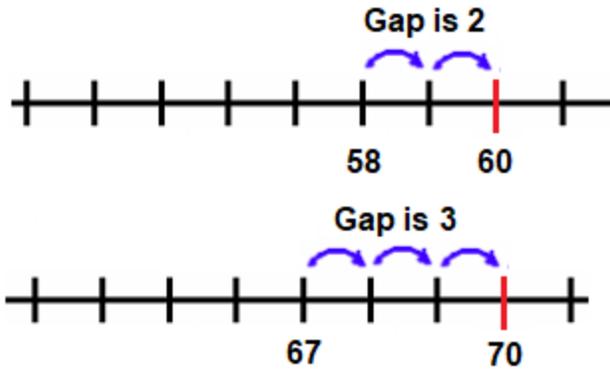
Call out a number, and determine the next TEN.

The next TEN for _____ is _____.

Repeat this until you understand the concept of “next TEN”.

Section 3: Gap to the Next TEN

4. On a Number Line, a gap exists between the number and the next Ten as follows.



The gap depends on the last digit of a number.

For example: The gap to next TEN for 8 is 2 (8 and 2 are 10)
 The gap to next TEN for 28 is 2 (28 and 2 are 30)
 The gap to next TEN for 34 is 6 (34 and 6 are 40)
 The gap to next TEN for 74 is 6 (74 and 6 are 80)

☺ **EXERCISE**

Call out a number, and determine the gap to next TEN.

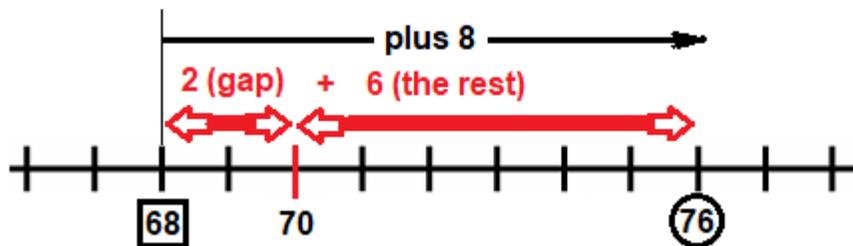
The gap to next TEN for _____ is _____.

Repeat this until you understand the concept of “gap to next TEN”.

Section 4: The Gap Method for Addition

5. The steps are:

- (a) Fill the gap to the next TEN by borrowing from the other number.
- (b) Then add to the “next TEN” the remainder of the other number.



- (a) For 68, the next TEN is 70 and the gap is 2. Fill this gap by borrowing 2 from 8.
- (b) Then add to 70 the remainder 6 from 8. The sum is 76

Example: Add 47 + 8

The next TEN for 47 is 50, and the gap is 3. We take away 3 from 8, and the remainder is 5. The sum is $50 + 5 = 55$.

6. When the second number is smaller than the gap, we add using the traditional method of counting more.

Example: Add $35 + 3$

The next TEN for 35 is 40, and the gap is 5. The second number 3 is smaller than the gap of 5. So, to add, we simply count 3 more from 35. The sum is 38.

☺ **EXERCISE**

Add double-digit and single-digit numbers using the gap method.

Add: (double-digit number) ____ + (single-digit number) ____.

Repeat this until you can add using the gap method.

Section 5: The Last Digit of the Sum

7. When adding a single-digit number to a double-digit number it is important to get the last digit of the sum first. Then the whole sum is determined easily. There are not that many combinations of different digits to get the last digit of the sum. For example.

6 and 6 always gives 2. ($16 + 6 = 22$, $36 + 6 = 42$, $76 + 6 = 82$)

7 and 7 always gives 4. ($27 + 7 = 34$, $47 + 7 = 54$, $87 + 7 = 94$)

8 and 8 always gives 6. ($38 + 8 = 46$, $58 + 8 = 66$, $78 + 8 = 86$)

7 and 5 always gives 2. ($47 + 5 = 52$, $65 + 7 = 72$, $85 + 7 = 92$)

☺ **EXERCISE**

Add double-digit and single-digit numbers using the last digit method.

Add: (double-digit number) ____ + (single-digit number) ____.

Repeat this until you can comfortably add different last digit combinations.

Section 6: Other Methods of Mental Addition

8. Note that we can add two numbers in many different ways, such as,

$$7 + 6 = \text{double the 7 and subtract 1} = 14 - 1 = 13$$

$$17 + 9 = \text{For 9 "add 10 and subtract 1"} = 27 - 1 = 26$$

So, learn to add in different ways until you start to develop a number sense.

☺ **EXERCISE**

Add double-digit and single-digit numbers using different mental methods.

Add: (double-digit number) ____ + (single-digit number) ____.

Repeat this until you have developed a good number sense.

Add the following mentally.

- (a) $18 + 5$ (e) $73 + 9$ (i) $75 + 9$ (m) $16 + 8$ (q) $87 + 9$
 (b) $33 + 8$ (f) $25 + 8$ (j) $59 + 4$ (n) $37 + 4$ (r) $66 + 6$
 (c) $54 + 9$ (g) $34 + 8$ (k) $46 + 9$ (o) $48 + 9$ (s) $54 + 7$
 (d) $67 + 8$ (h) $69 + 5$ (l) $29 + 8$ (p) $67 + 5$ (t) $32 + 9$

Answer: (a) 23 (b) 41 (c) 63 (d) 75 (e) 82 (f) 33 (g) 42 (h) 74 (i) 84 (j) 63 (k) 55 (l) 37 (m) 24 (n) 41 (o) 57
 (p) 72 (q) 96 (r) 72 (s) 61 (t) 41

Section 7: Adding Double-digit Numbers

9. We may add double-digit numbers by adding the TENS first and then the ONES. But you should be flexible in finding your own way to add accurately and rapidly.

$$26 + 33 = (20 + 30) + (6 + 3) = 50 + 9 = 59$$

$$33 + 57 = (30 + 50) + (3 + 7) = 80 + 10 = 90$$

$$57 + 26 = (50 + 20) + (7 + 6) = 70 + 13 = 83$$

☺ EXERCISE

Add the following double-digit numbers

- (a) $18 + 35$ (f) $73 + 29$ (k) $75 + 39$ (p) $16 + 78$ (u) $87 + 19$
 (b) $33 + 28$ (g) $25 + 38$ (l) $59 + 24$ (q) $37 + 44$ (v) $66 + 26$
 (c) $54 + 19$ (h) $34 + 58$ (m) $46 + 29$ (r) $48 + 19$ (w) $54 + 37$
 (d) $67 + 28$ (i) $69 + 15$ (n) $29 + 68$ (s) $67 + 15$ (x) $32 + 49$
 (e) $89 + 47$ (j) $28 + 77$ (o) $15 + 76$ (t) $78 + 13$ (y) $28 + 58$

Answer: (a) 53 (b) 61 (c) 73 (d) 95 (e) 136 (f) 102 (g) 63 (h) 92 (i) 84 (j) 105 (k) 114 (l) 83 (m) 75 (n) 97 (o) 91
 (p) 94 (q) 81 (r) 67 (s) 82 (t) 91 (u) 106 (v) 92 (w) 91 (x) 81 (y) 86

Section 8: Adding Large Numbers by Column

10. Line up the numbers from right to left. Add one column at a time from right to left. Write the sum below the line. If the sum is more than ten then carry over the “tens” to the column to the left to be added there.

		1			
	1	5	3	7	
+		3	9	1	
	1	9	2	8	

		1	1	1	1	CARRY OVER
	2	3	8	5	4	
+	4	6	1	4	7	
	7	0	0	0	1	

11. We can add more than two numbers this way. The carry-over could be larger than 1.

		1	1
		4	2
		1	9
+	3	7	5
	4	3	6

		2	2
		8	3
	1	5	6
	2	4	3
+		3	9
	5	2	1

☺ **EXERCISE**

Practice addition from the following link. Check your answers from the answers given at the bottom. If the answer is different then find the error.

[Addition Problems from Dubb](#)

☺ **Lesson Plan 2: Check your Understanding**

1. Mary has \$34, Jane has \$15, and Helen has \$27 more than Mary and Jane together. Find the total amount of money the three girls have together.
2. The greatest known depth of our oceans is 36,198 feet, and the highest point on the earth is Mt. Everest, 29,028 feet. What is the vertical distance from the lowest point to the highest point on the earth?
3. A certain auditorium has three sections. There are 1,032 seats in the center section and 584 seats in each of the side sections. How many people can be seated in the auditorium?

Check your answers against the answers given below.

Answers

- 1) \$125
- 2) 65,226 ft.
- 3) 2200 people