1 Chapter Numbers Upto Ten Thousand

We have already learnt to read and write the numbers upto 1000.
Let us recall how we get 10 from 9,100 from 99 and 1000 from 999.

$9 + 1 = 10$

$99 + 1 = 100$

$999 + 1 = 1000$

$$\begin{array}{r} 9 \\ +\ 1 \\ \hline 10 \end{array} \qquad \begin{array}{r} {\scriptstyle 1\ \ \ } \\ 99 \\ +\ \ 1 \\ \hline 100 \end{array} \qquad \begin{array}{r} {\scriptstyle 1\ 1\ \ } \\ 999 \\ +\ \ \ 1 \\ \hline 1000 \end{array}$$

Thus, we get 1000 by adding 1 to 999.

1000 has four digits. We read it as "One thousand".

From the above, do you observe any pattern ?

Yes, we observe a pattern. To write a number **1** more than 9, we open a second place called tens place, and write 1 in the tens place and 0 in the ones place.

T	O
1	0

To write a number **1** more than 99, we open a third place called hundreds place and write 1 in this place and 0 in the first and second places as shown alongside.

H	T	O
1	0	0

To write a number **1** more than 999, we open a fourth place called thousands place and write 1 in this place and 0 in the first, second and third places as shown alongside.

Th	H	T	O
1	0	0	0

We can say that **999** is the largest 3-digit number and **1000** is the smallest 4-digit number.

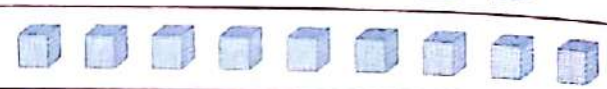
FORMATION OF NUMBERS

We know that 101 is formed by adding 1 to 100 and 102 is formed by adding 1 to 101 and so on. In the same way, we can form numbers beyond 999.

We can read and write numbers after 999 as follows :

How we write	How we read
999 + 1 = 1000	one thousand
1000 + 1 = 1001	one thousand one
1001 + 1 = 1002	one thousand two
....	.....
....	.....
1008 + 1 = 1009	one thousand nine
1009 + 1 = 1010	one thousand ten
1010 + 1 = 1011	one thousand eleven
....	.....
....	.....
1098 + 1 = 1099	one thousand ninety-nine
1099 + 1 = 1100	one thousand one hundred
1100 + 1 = 1101	one thousand one hundred one
....	.....
....	.....
1198 + 1 = 1199	one thousand one hundred ninety-nine
1999 + 1 = 2000	two thousand
2000 + 1 = 2001	two thousand one
....	.....
....	.....
2998 + 1 = 2999	two thousand nine hundred ninety-nine
2999 + 1 = 3000	three thousand
3000 + 1 = 3001	three thousand one
3001 + 1 = 3002	three thousand two
....	.....
....	.....
9998 + 1 = 9999	nine thousand nine hundred ninety-nine

Read the following in thousands : One box represents 1000.

One thousand	1000	
Two thousand	2000	
Three thousand	3000	
Four thousand	4000	
Five thousand	5000	
Six thousand	6000	
Seven thousand	7000	
Eight thousand	8000	
Nine thousand	9000	
Ten thousand	10000	

EXERCISE 1.1

1. Write the numerals of each of the following :

(a) Six thousand five hundred twelve = 6512

(b) Eight thousand four hundred five =

(c) Two thousand nine hundred eight =

(d) Nine thousand eight hundred thirty-five =

(e) Five thousand nine hundred eighty-nine =

2. Write the number names of the following :

(a) 2380 = Two thousand three hundred eighty

(b) 3405 =

(c) 8261 =

(d) 9220 =

(e) 8009 =

(f) 3708 = ____

(g) 5610 = ____

(h) 6820 = ____

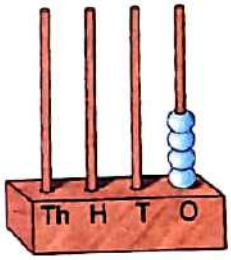
(i) 5016 = ____

(j) 9900 = ____

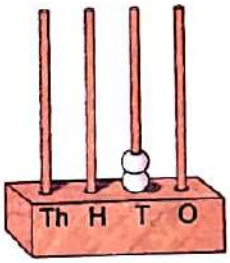
REPRESENTING 4-DIGIT NUMBERS ON THE ABACUS

EXAMPLE 1 : *Represent 5624 on the abacus.*

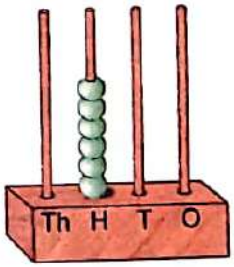
Step 1 : In the numeral 5624, 4 is in the ones place. So, we put 4 beads in the ones column in the abacus.



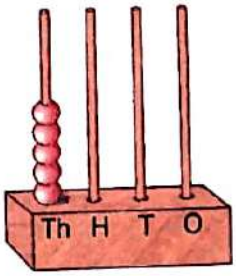
Step 2 : The digit in the tens place is 2. So, we put 2 beads in the tens column in the abacus.



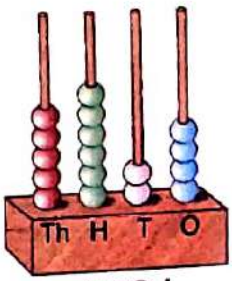
Step 3 : The digit in the hundreds place is 6. So, we put 6 beads in the hundreds column in the abacus.



Step 4 : The digit in the thousands place is 5. So, we put 5 beads in the thousands column in the abacus.

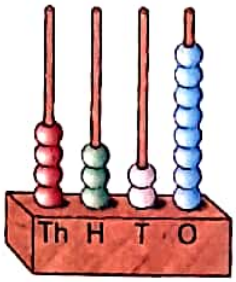


Thus, the numeral 5624 is represented in the abacus as given alongside :

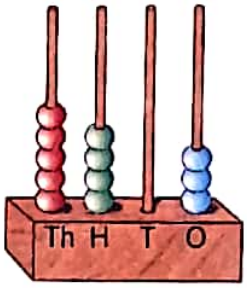


5624

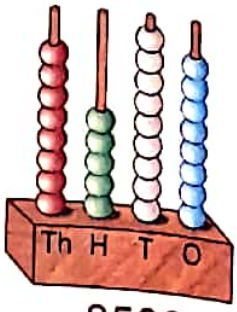
Similarly, the numerals 4328, 5403 and 8598 are represented on the abacus as given below :



4328



5403

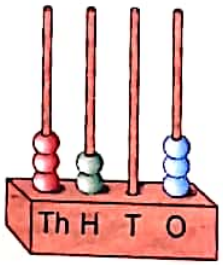


8598

EXERCISE 1.2

1. Read the abacus and write the numeral and number name :

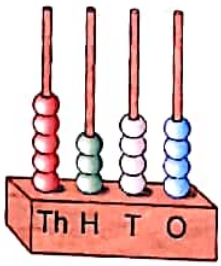
(a)



3203

Three thousand two hundred three

(b)



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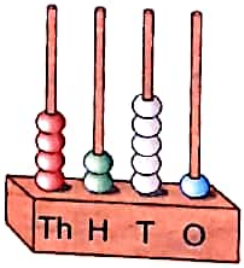
(c)



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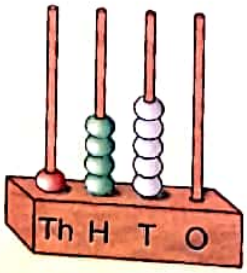
(d)



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.....

2. Write the numeral of each of the following :

(a) 6 thousands 5 hundreds 2 tens 7 ones

(b) 9 thousands 3 hundreds 1 ten

(c) 2 thousands 3 hundreds 9 tens 2 ones

(d) 3 thousands 2 hundreds

(e) 5 thousands 9 hundreds

Th	H	T	O
6	5	2	7

3. Fill in the boxes with the missing digits :

(a) 2380 = ☐ Thousands ☐ hundreds ☐ tens ☐ ones

(b) 3405 = ☐ Thousands ☐ hundreds ☐ tens ☐ ones

(c) 8261 = ☐ Thousands ☐ hundreds ☐ tens ☐ ones

(d) 3009 = ☐ Thousands ☐ hundreds ☐ tens ☐ ones

(e) 2598 = ☐ Thousands ☐ hundreds ☐ tens ☐ ones

(f) 5840 = ☐ Thousands ☐ hundreds ☐ tens ☐ ones

4. Write the numerals in the ascending order :

(a) from 3110 to 3115 = 3110, 3111, 3112, 3113, 3114, 3115

(b) from 7235 to 7241 = ..., ..., ..., ..., ..., ...

(c) from 8698 to 8703 = ..., ..., ..., ..., ..., ...

5. Write the smallest :

(a) 2-digit number. (b) 3-digit number. (c) 4-digit number.

PLACE VALUE

Observe the place value table given below :

Thousands (Th)	**Hundreds** (H)	**Tens** (T)	**Ones** (O)
1000	100	10	1

Now, consider the numbers, say 4583 and 5609.

Arrange the numbers in the place value table as follows :

	Thousands (Th)	**Hundreds** (H)	**Tens** (T)	**Ones** (O)
	1000	100	10	1
4583 ⟹	4	5	8	3
5609 ⟹	5	6	0	9

In 4 5 8 3, we have the following :

4 5 8 3

→ is in the ones column
∴ place value of 3 = 3 × 1 = 3

→ is in the tens column
∴ place value of 8 = 8 × 10 = 80

→ is in the hundreds column
∴ place value of 5 = 5 × 100 = 500

→ is in the thousands column
∴ place value of 4 = 4 × 1000 = 4000

4583

Similarly in 5609, we have the following :

5 6 0 9

Place value of 9 = 9 ones = 9
Place value of 0 = 0 tens = 00
Place value of 6 = 6 hundreds = 600
Place value of 5 = 5 thousands = 5000

5609

The place value of 0 is always zero (0).

Expanded Form of a Numeral

If a numeral is expressed as the sum of place values of its all digits, it is called its expanded form.

For example : 3475 = 3 thousands + 4 hundreds + 7 tens + 5 ones
or 3475 = 3000 + 400 + 70 + 5.

EXAMPLE 2 : *Write the place value of 8 in the numeral 7853.*

SOLUTION : In the numeral 7853, 8 is at hundreds place.
∴ Place value of 8 = 8 × 100 = **800.**

EXAMPLE 3 : *Write the place values of 7 in the numeral 5707 and find the difference between them.*

SOLUTION : The given numeral is 5707.
From right, the first 7 is at ones place.
∴ its place-value = 7 ones = 7 × 1 = 7.
From right, the second 7 is at hundreds place.
∴ its place-value = 7 hundreds = 7 × 100 = 700.
Now, the difference between the two place values of 7 = 700 – 7 = **693.**

EXAMPLE 4 : *Express in expanded form :*
(a) *4050* (b) *7324*

SOLUTION :

(a) 4050 = 4 thousands + 5 tens

or 4050 = **4000 + 50**

(b) 7324 = 7 thousands + 3 hundreds + 2 tens + 4 ones

or 7324 = **7000 + 300 + 20 + 4**

EXAMPLE 5 : *Write in short form :*

(a) *5000 + 300 + 7*

(b) *7 thousands + 2 hundreds + 5 tens + 5 ones*

SOLUTION :

(a) 5000 + 300 + 7 = **5307**

(b) 7 thousands + 2 hundreds + 5 tens + 5 ones = **7255**

EXERCISE 1.3

1. Multiple Choice Questions (MCQ) Choose the correct option.

(i) The place value of 7 in 3672 is

(a) 70 (b) 7 (c) 700

(ii) The place value of 8 in 8341 is

(a) 8000 (b) 800 (c) 80

(iii) The place value of 5 in 2520 is

(a) 50 (b) 500 (c) 5000

(iv) The place value of 9 in 3900 is

(a) 9 (b) 90 (c) 900

2. Write the place value of 6 in 2362.

3. Write the place value of 3 in 2348.

4. Write the place value of 2 in 3286.

5. Write the place value of 0 in 3045.

6. Write the place value of 3 in 2530.

7. Write the place value of 4 in 4350.

8. Write the place value of 7 in 3725.

9. Write in the expanded form :

(a) 4318 = 4 thousands + 3 hundreds + 1 ten + 8 ones

= 4000 + 300 + 10 + 8

(b) 4525 = ☐ thousands + ☐ hundreds + ☐ tens + ☐ ones

= ..... + ... + ... + ...

(c) 6287 = ☐ thousands + ☐ hundreds + ☐ tens + ☐ ones

= ..... + ... + ... + ...

10. Put a box around the correct numeral. The first has been done for you :

(a) 4 thousands 6 tens 6 ones	→	4660	4606	6604	**4066**
(b) 7 thousands 8 ones	→	7800	7008	8007	7080
(c) 6 thousands 6 tens	→	6600	606	660	6060
(d) 5 thousands 8 ones	→	5800	580	5008	580
(e) 9 thousands 6 ones	→	9600	9060	960	9006

ORDERING OF NUMBERS

To compare 4-digit numbers, we follow the same rules as we used in class 2.

Rule 1 : Between the two numbers, the number containing more digits is the greater number.

For Example

1245 > 945
2456 > 729
5025 > 796

Rule 2 : If two numbers contain the same number of digits, we compare them by their leftmost digits. If the leftmost digits are also the same, we compare them by their next digits from the left, and so on.

For Example

4325 > 3752
4325 > 4252
4325 > 4319
4325 > 4323

Successor

The number that comes just after particular number is called its successor.

For Example :

Number	Successor
9	10
99	100
3999	4000

Predecessor

The number that comes just before a particular number is called its predecessor.

For Example :

Number	Predecessor
10	9
100	99
1000	999

NOTE Zero has no predecessor.

Thus, we have the following :

Predecessor	Number	Successor
9	10	11
99	100	101
999	1000	1001

Ascending Order (Increasing Order)

Numbers are said to be in ascending order when they are arranged from the smallest to the largest number.

For Example : 299, 1005, 7690, 8503 and 9921 are arranged in ascending order.

We can also write : $299 < 1005 < 7690 < 8503 < 9921$.

Descending Order (Decreasing Order)

Numbers are said to be in descending order when they are arranged from the largest to the smallest number.

For Example : 8769, 6083, 5209, 4008 and 999 are arranged in descending order.

We can also write : $8769 < 6083 < 5209 < 4008 < 999$.

Exercise 1.4

1. Put $>$, $<$ or $=$ in the box to make the statement true :

(a) 8438 ☐ 9254 (b) 6258 ☐ 2598 (c) 4567 ☐ 2345

(d) 5678 ☐ 8321 (e) 4684 ☐ 4684 (f) 3257 ☐ 8243

(g) 4789 ☐ 9786 (h) 6786 ☐ 6786

(i) 327 + 844 ☐ 945 + 317 (j) 954 + 46 ☐ 999

2. Write the successor of each of the following numbers :

(a) 3644 (b) 999 (c) 9899 (d) 4500

3. Write the predecessor of each of the following numbers :

(a) 4400 (b) 7884 (c) 5676 (d) 9567

4. Rewrite the following numbers in descending (decreasing) order :

Example : The decreasing order of 1445, 936, 3848, 1560, 2673, 5607 = 5607, 3848, 2673, 1560, 1445, 936

(a) 7219, 4256, 7291, 9721, 4578, 9271 (b) 5673, 6573, 6537, 7365, 7563, 6628

(c) 8974, 8947, 9874, 8544, 9478, 9996 (d) 3468, 3486, 3864, 3846, 6384, 6348

5. Find the successor of the largest 2-digit number. Is it the smallest 3-digit number ?

6. Find the successor of the largest 3-digit number. Is it the smallest 4-digit number ?

Miscellaneous Exercise

1. Choose the correct option. (MCQs)

(i) The predecessor of 9999 is

(a) 10000 (b) 9000 (c) 9998

(ii) The place value of 6 in 5060 is

(a) 6000 (b) 60 (c) 600

(iii) 8000 + 50 + 2 is the expanded form of

(a) 852 (b) 8520 (c) 8052

2. Match the following :

Column A	Column B
(a) Seven thousand eight hundred	(i) 6900
(b) Six thousand nine hundred	(ii) 4015
(c) Eight thousand two	(iii) 7800
(d) Four thousand fifteen	(iv) 9009
(e) Nine thousand nine	(v) 8002

3. Write the next four numbers by observing the pattern carefully :

(a) 2389, 2390, 2391, ... , ... , ... , ...

(b) 2211, 2212, 2213, ... , ... , ... , ...

(c) 4405, 4410, 4415, ... , ... , ... , ...

(d) 1178, 1278, 1378, ... , ... , ... , ...

(e) 5001, 5002, 5003, ... , ... , ... , ...

4. Write the numerals in the descending order :

(a) from 5403 to 5398 = 5403, 5402, 5401, 5400, 5399, 5398

(b) from 6009 to 6002 = ..., ..., ..., ..., ..., ...

(c) from 4012 to 4007 = ..., ..., ..., ..., ..., ...

5. Write the greatest :

(a) 2-digit number. (b) 3-digit number. (c) 4-digit number.

6. Write the place values of 6s in 6263.

7. Write the place values of 9s in 9909.

8. Write the place values of 5s in 5253. Find their difference.

9. Write true or false :

(a) The place value of 1 in 3816 is 10.

(b) The place value of 3 in 3954 is 3000.

(c) The place value of 4 in 5419 is 4000.

(d) 8910 = 8000 + 900 + 100

(e) 6854 = 6 thousands + 8 hundreds + 5 tens + 4 ones

10. Write in the expanded form :

(i) 9780 = ☐ thousands + ☐ hundreds + ☐ tens + ☐ ones

= ..... + ... + ... + ...

(ii) 4056 = ☐ thousands + ☐ hundreds + ☐ tens + ☐ ones

= ..... + ...+ .....+ .....

(iii) 3814 = ☐ thousands + ☐ hundreds + ☐ tens + ☐ ones

= ..... + ...+ .....+ .....

11. Rewrite the following numbers in ascending (increasing) order :

Example : The increasing order of 6783, 6738, 8783, 5432, 7638, 7483
= 5432, 6738, 6783, 7483, 7638, 8783

(a) 4532, 5432, 4523, 4534, 4554, 6754
(b) 7829, 7928, 7892, 7982, 2987, 9278
(c) 6345, 6354, 3645, 5436, 5463, 7806
(d) 6780, 5410, 6480, 6980, 7990, 7980

12. Find the difference between the largest 4-digit number and largest 3-digit number. Find the predecessor and successor of the resultant.

VALUE-BASED QUESTIONS

1. Number of boys in a school of strength 2960 is the place value of its thousands digit. What is the number of girls in the school ?
2. Population of a big village is 1 more than the greatest 4-digit number. If the no. of females is 4065, find the no. of males in the village.