

1. Numbers

You Know

- numbers up to 999
- number names for numbers up to 999
- counting numbers in tens and hundreds

You will Learn


- formation of 4-digit numbers
- reading and writing 4-digit numbers in figures and words
- place value and face value of digits
- expanded and standard form of numbers
- successor and predecessor
- comparing and ordering numbers
- formation of smallest and greatest 4-digit numbers using the given digits
- even and odd numbers
- rounding off numbers

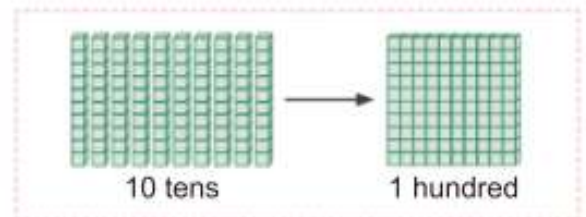
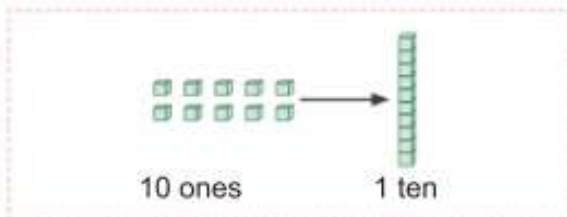


Kick Start

Numbers 1, 2, 3, 4, 5, 6, 7, are called counting numbers.

We use digits and place values to write numbers.

 is a unit cube. It represents ones.



The smallest 3-digit number is 100. It is read as '**One hundred**'.

The greatest 3-digit number is 999. It is read as '**Nine hundred ninety-nine**'.

Let's Exercise

Exercise 1.1



1. Write the number names for the following.

a. 200

b. 786

c. 109

d. 923

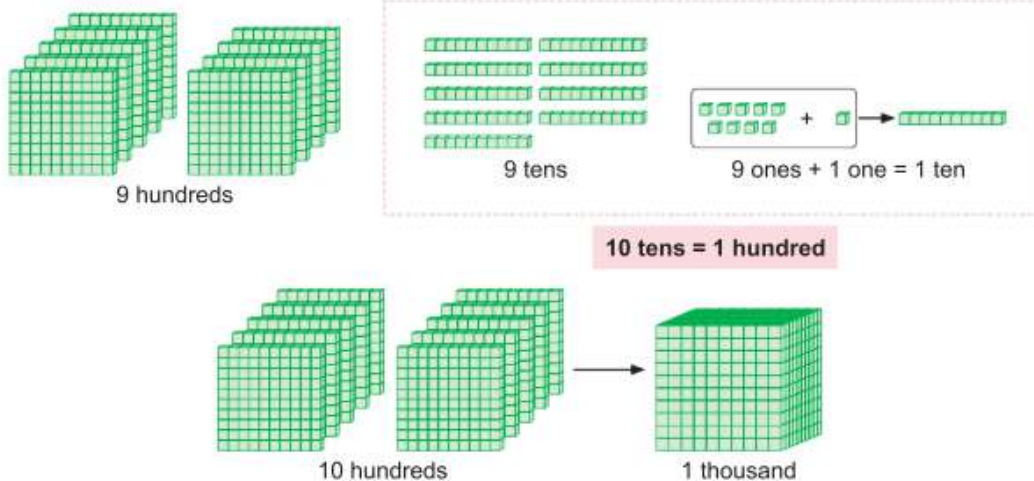
e. 489

2. Write the place value of the underlined digit.
- a. 764 b. 828 c. 325 d. 973 e. 634
3. Classify the following numbers as even or odd numbers.
652, 867, 508, 183, 124, 792, 757, 86, 976, 259, 777, 350
4. List the smallest number and the greatest number from the following.
- a. 721, 863, 186, 973 b. 876, 347, 832, 734
c. 682, 369, 176, 646 d. 987, 102, 781, 147
5. Fill in the boxes with the correct sign '<', '>', or '='.
- a. 156 128 b. 346 865 c. 762 394
d. 197 987 e. 963 946 f. 676 783
6. Write the numbers in the ascending and descending order.
- a. 235, 687, 548, 145, 184 b. 172, 481, 724, 173, 695
c. 908, 236, 297, 356, 976 d. 379, 256, 902, 654, 367

Formation of 4-digit Number

999 is the greatest 3-digit number.

Let's see what happens when we add one to it.



The above pictorial representation can be shown as:

	H	T	O
	9	9	9
+			1
	1	0	0

This is the **Thousands (Th)** place.

The number 1000 is a 4-digit number and it can be represented in the place value table as shown along side.

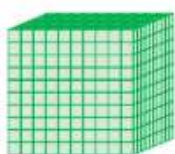
Th	H	T	O
1	0	0	0

1000 is written in words as **one thousand**. Thus, 4-digit number begins with the thousands place.

1000 is the smallest 4-digit number.

Reading and Writing 4-digit Numbers

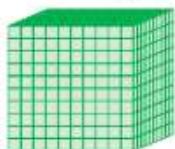
On adding 1 one to 1000 we get,



Th	H	T	O
1	0	0	1

This is written in words as **one thousand one**.

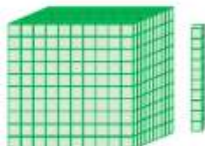
On adding 2 ones to 1000 we get,



Th	H	T	O
1	0	0	2

This is written in words as **one thousand two**.

On adding 1 ten to 1000 we get,



Th	H	T	O
1	0	1	0

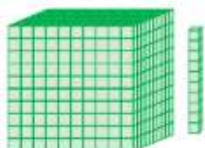
This is written in words as **one thousand ten**.

Let's count the numbers from 1001 to 1010.

Number	Number name
1001	One thousand one
1002	One thousand two
1003	One thousand three
1004	One thousand four
1005	One thousand five

Number	Number name
1006	One thousand six
1007	One thousand seven
1008	One thousand eight
1009	One thousand nine
1010	One thousand ten

On adding 1 ten and 1 one to 1000 we get,

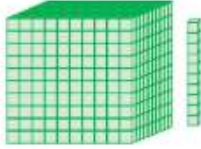


Th	H	T	O
1	0	1	1

This is written in words as **one thousand eleven**.



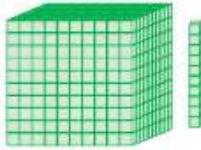
On adding 1 ten and 2 ones to 1000 we get,



Th	H	T	O
1	0	1	2

This is written in words as **one thousand twelve**.

On adding 2 tens to 1000 we get,



Th	H	T	O
1	0	2	0

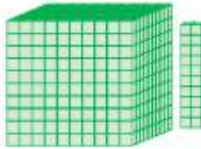
This is written in words as **one thousand twenty**.

Let's count the numbers from 1011 to 1020

Number	Number name
1011	One thousand eleven
1012	One thousand twelve
1013	One thousand thirteen
1014	One thousand fourteen
1015	One thousand fifteen

Number	Number name
1016	One thousand sixteen
1017	One thousand seventeen
1018	One thousand eighteen
1019	One thousand nineteen
1020	One thousand twenty

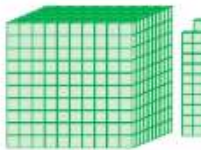
On adding 1 hundred to 1000 we get,



Th	H	T	O
1	1	0	0

This is written in words as **one thousand one hundred**.

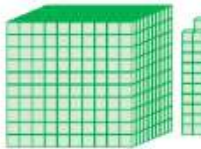
On adding 2 hundreds and 2 tens to 1000 we get,



Th	H	T	O
1	2	2	0

This is written in words as **one thousand two hundred twenty**.

On adding 2 hundreds, 2 tens and 5 ones to 1000 we get,



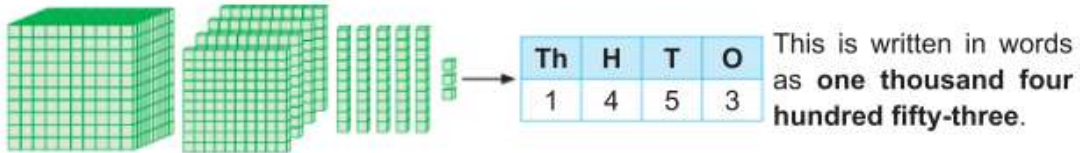
Th	H	T	O
1	2	2	5

This is written in words as **one thousand two hundred twenty-five**.

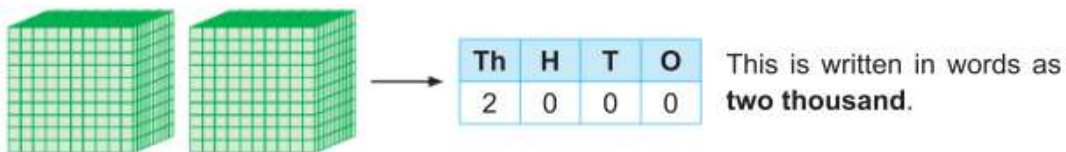




Similarly, on adding 4 hundreds, 5 tens and 3 ones to 1000 we get,



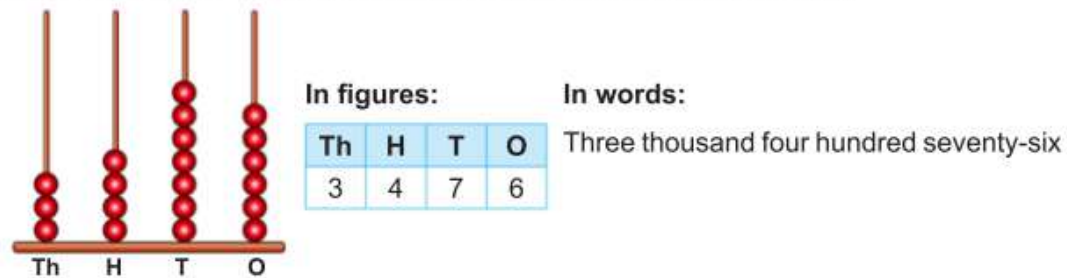
2000 can be represented by two blocks of 1000.



Thus if we keep proceeding like this, we can form the remaining numbers up to 9999.

9999 is the greatest 4-digit number.

We can also form 4-digit numbers using an **abacus** as shown below:



Exercise 1.2

1. Fill in the missing numbers in the given sequence.

- a. 1101, , , 1104, , 1106, , , , 1110
- b. , 2532, , 2534, , , 2537, , , 2540
- c. , 3032, , , 3035, , , , , 3040
- d. 4001, , , 4004, , , 4007, , , 4010
- e. , 5062, , , 5065, , , 5068, ,





- f. 6671, , , 6674, , , 6677, , , 6680
- g. 7061, , 7063, , , , , 7068, , 7070
- h. , 8362, 8363, , , 8366, , , , 8370
- i. 9001, , , , 9005, 9006, , , 9009,

2. Write number names for the following.

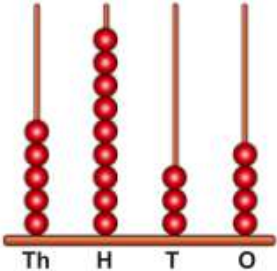
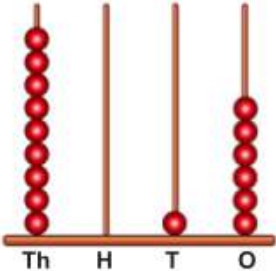
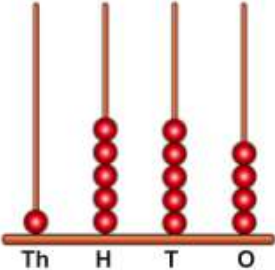
- a. 1008 b. 2320 c. 4155 d. 7210 e. 8112

3. Write the following in numerals.

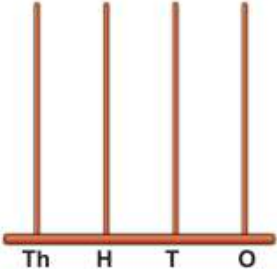
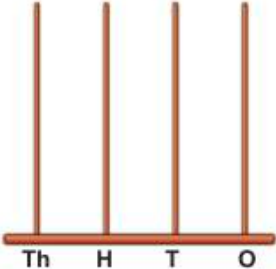
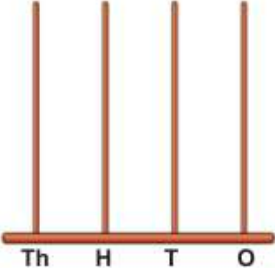
- a. Five thousand one hundred seventeen
 b. Two thousand twenty-seven
 c. Five thousand three
 d. Nine thousand six hundred twelve
 e. Eight thousand four hundred sixty-eight

4. Write the numbers represented on the abacus in words.



- a.  b.  c. 

5. Draw beads to represent the following numbers on the abacus.

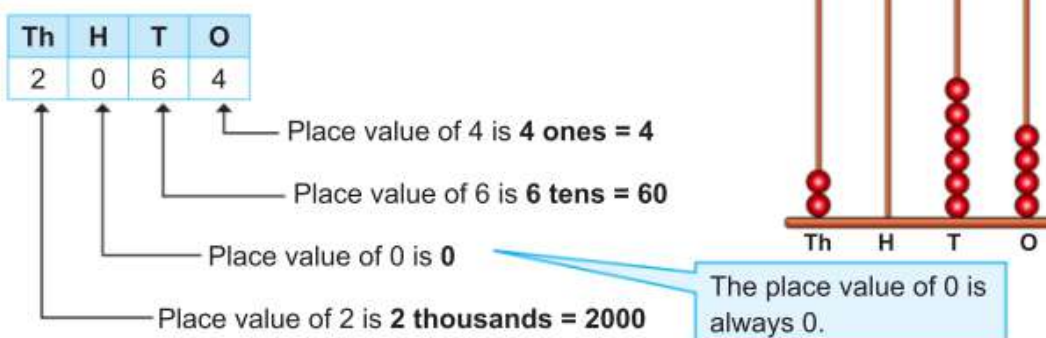
- a. 1076 b. 2731 c. 5608
-   



Place Value and Face Value of Digits

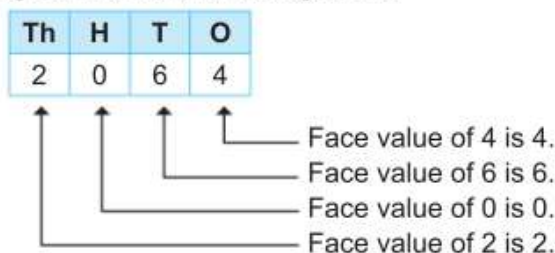
Place Value

Place value of a digit in a number depends upon its place in the number.



Face Value

Face value of any digit in a number is the digit itself.



The place value of a digit changes with its position but the face value does not change.

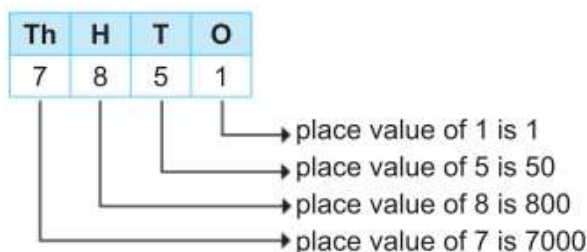
Expanded and Standard Form of a Number

Expanded Form

When we write a number as the sum of the place value of its digits, the number is said to be in its **expanded form**.

Example 1 Write the expanded form of 7851.

Solution:



Thus, the expanded form of 7851 is $7000 + 800 + 50 + 1$.



Standard Form

When we write a number in its original form, the number is said to be in its **standard form**.

Example 2 Write $3000 + 500 + 30 + 5$ in the standard form.

Solution:

$$3000 + 500 + 30 + 5 = 3535$$

Exercise 1.3

1. Fill in the boxes with the correct answer.



	Face value of 8	Place value of 8
a. 1798		
b. 6283		
c. 4825		
d. 8107		

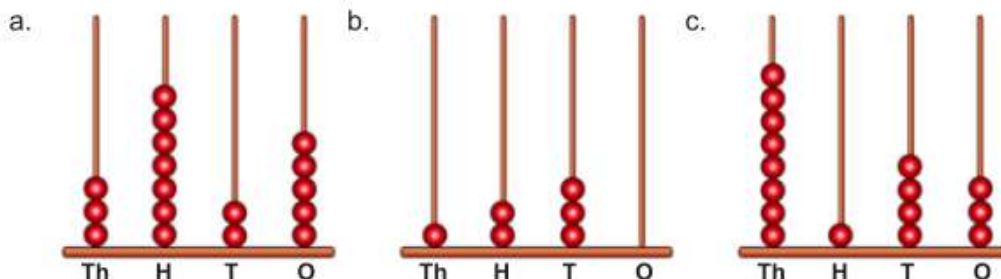
2. Write the place value of the coloured digit in the following.

Number	Place value
a. 5196	
b. 3042	
c. 7632	
d. 1201	

3. Fill in the blanks.

- a. In 3174, the place value of 1 is .
- b. In 4235, there are thousands.
- c. In 1002, there are ones.
- d. In 1056, the face value of 1 is .
- e. $9820 = 9000 +$ $+ 20 + 0$

4. Write the expanded form of the number represented on the abacus.



5. Find the difference in the place values of:

- a. 4's in 4146 - =
- b. 1's in 8151 - =
- c. 7's in 7037 - =
- d. 9's in 5992 - =

6. Write the expanded form of the following numbers.

- a. 8478 b. 2905 c. 9397 d. 6384
- e. 1346 f. 9800 g. 7772 h. 1002

7. Write the following in standard form.

- a. $3000 + 50 + 3$ b. $1000 + 500 + 40 + 2$ c. $500 + 60 + 7$
- d. $8000 + 300 + 9$ e. $4000 + 700 + 70 + 4$ f. $5000 + 800 + 1$

Successor and Predecessor

Successor: A number that comes after a given number is called its successor.

Predecessor: A number that comes before a given number is called its predecessor.

Example 1 Write the predecessor and successor of 4395 and 6790.

Solution:

Predecessor	Number	Successor
$4395 - 1 = 4394$	4395	$4395 + 1 = 4396$
$6790 - 1 = 6789$	6790	$6790 + 1 = 6791$

On adding 1 to the given number we get its successor.
On subtracting 1 from the given number we get its predecessor.



Exercise 1.4

- Write the successor of each of the following numbers.

a. 3468	b. 5787	c. 1038	d. 2959
e. 8564	f. 9875	g. 1853	h. 1749
- Write the predecessor of each of the following numbers.

a. 6998	b. 7087	c. 1703	d. 1919
e. 7642	f. 3628	g. 2460	h. 9741
- Fill in the blanks with the number that comes in between the given numbers.

a. 1213, <input type="text"/> , 1215	b. 5645, <input type="text"/> , 5647
c. 1001, <input type="text"/> , 1003	d. 9997, <input type="text"/> , 9999

Comparing Numbers

Signs of comparison:

Greater than: >

Less than: <

Equal to: =

Rule of Comparison:

Comparing numbers having different number of digits

If the numbers to be compared have different number of digits, then the number that has more number of digits is the greater number.

Example 1 Compare 2717 and 977.

Solution:

Th	H	T	O	
2	7	1	7	← 4 digits
	9	7	7	← 3 digits

Thus, $2717 > 977$

Comparing numbers having same number of digits

- If the numbers to be compared have same number of digits, then compare the digits in the highest place value i.e. thousands. The number that has the greater digit at the thousands place is the greater number.

Example 2 Compare 8359 and 6738.

Solution:

Th	H	T	O	
8	3	5	9	← 4 digits
6	7	3	8	← 4 digits

↓
 $8 > 6$

Thus, $8359 > 6738$

- b. If the digits at the thousands place are same, then compare the digits at the hundreds place. The number that has the greater digit at the hundreds place is the greater number.

Example 3 Compare 4865 and 4901.

Solution:

Th	H	T	O	
4	8	6	5	← 4 digits
4	9	0	1	← 4 digits

↓
 $8 < 9$

Thus, $4865 < 4901$

- c. If the digits at the thousands and hundreds place are same, then compare the digits at the tens place. The number that has the greater digit at the tens place is the greater number.

Example 4 Compare 5210 and 5249.

Solution:

Th	H	T	O	
5	2	1	0	← 4 digits
5	2	4	9	← 4 digits

↓
 $1 < 4$

Thus, $5210 < 5249$

- d. If the digits at the thousands, hundreds and tens place are same, then compare the digits at the ones place. The number that has the greater digit at the ones place is the greater number.

Example 5 Compare 7425 and 7423.

Solution:

Th	H	T	O
7	4	2	5
7	4	2	3

\longleftarrow 4 digits
 \longleftarrow 4 digits
 $5 > 3$

Thus, $7425 > 7423$

e. If the digits at the thousands, hundreds, tens and once place are same, then the given numbers are equal.

Example 6 Compare 1831 and 1831.

Solution:

Th	H	T	O
1	8	3	1
1	8	3	1

\longleftarrow 4 digits
 \longleftarrow 4 digits

Thus, $1831 = 1831$

Exercise 1.5

1. Compare the following numbers and fill in the boxes with '<', '>' or '=' sign.

- a. b.
- c. d.

2. From the following sets of numbers circle the greatest number and cross out the smallest number.

- a. , , , , ,
- b. , , , , ,
- c. , , , , ,

Ordering Numbers

Ascending Order

Here, the four teddies have been arranged in increasing order of their sizes.



We can also arrange the numbers in the increasing order.

A given group of numbers when arranged from the smallest to greatest are said to be in the **ascending order**.

Example 1 Arrange the following numbers in ascending order.
945, 2389, 431, 6011

Solution:

Step 1: Arrange the given numbers in the place value chart.

Step 2: Compare the given numbers using place value chart.

Step 3: Arrange the numbers from smallest to greatest.

$$431 < 945 < 2389 < 6011.$$

Thus, the ascending order is **431, 945, 2389, 6011**.

Th	H	T	O
	9	4	5
2	3	8	9
	4	3	1
6	0	1	1

Descending Order

Here, the four teddies have been arranged in decreasing order of their sizes.



We can also arrange the numbers in the decreasing order.

A given group of numbers when arranged from the greatest to smallest are said to be in the **descending order**.

Example 2 Arrange the following numbers in descending order.
3265, 980, 3294, 909

Solution:

Step 1: Arrange the given numbers in the place value chart.

Step 2: Compare the given numbers using place value chart.

Step 3: Arrange the numbers from greatest to smallest.

$$3294 > 3265 > 980 > 909$$

Thus, the descending order is **3294, 3265, 980, 909**.

Th	H	T	O
3	2	6	5
	9	8	0
3	2	9	4
	9	0	9



Exercise 1.6

1. Arrange the following numbers in ascending order.
 - a. 850, 674, 1020, 1199
 - b. 2000, 1733, 537, 2200
 - c. 7837, 7548, 2383, 4834
 - d. 3621, 3253, 3726, 3756
 - e. 5505, 5055, 5550, 5500
 - f. 6311, 3116, 7478, 1966
2. Arrange the following numbers in descending order.
 - a. 1234, 478, 1105, 894
 - b. 5002, 716, 659, 3991
 - c. 9128, 9383, 9136, 9382
 - d. 4118, 4138, 4167, 4192
 - e. 2444, 1987, 1977, 2019
 - f. 3174, 3147, 3714, 3417

Formation of Smallest and Greatest 4-digit Numbers

Formation of Smallest 4-digit Number

To form the smallest 4-digit number using the given digits, arrange the given digits in the ascending order.

Example 1 Form the smallest 4-digit number using the digits 3, 2, 7 and 8.

Solution:

The digits in ascending order are 2, 3, 7, 8.

Thus, the smallest 4-digit number formed using the digits 3, 2, 7 and 8 is **2378**.

Formation of Greatest 4-digit Number

To form the greatest 4-digit number using the given digits, arrange the given digits in the descending order.

Example 2 Form the greatest 4-digit number using the digits 3, 2, 7 and 8.

Solution:

The digits in descending order are 8, 7, 3, 2.

Thus, the greatest 4-digit number formed using the digits 3, 2, 7 and 8 is 8732.

Formation of smallest and greatest 4-digit number with 0 as one of the digits

If one of the digit from the given digits is '0', the smallest number is formed by placing 0 at the second place from the left and the greatest number is formed by placing 0 at ones place.

Example 3 Form the smallest and greatest 4-digit numbers using the digits 5, 1, 0, 8.

Solution:

Smallest 4-digit number = 1058

Greatest 4-digit number = 8510

Exercise 1.7

1. Form the smallest 4-digit numbers using each of the given digits.

- | | | |
|---------------|---------------|---------------|
| a. 5, 3, 7, 1 | b. 4, 5, 2, 9 | c. 1, 8, 5, 9 |
| d. 8, 0, 5, 6 | e. 1, 7, 3, 9 | f. 2, 9, 8, 0 |

2. Form the greatest 4-digit numbers using each of the given digits.

- | | | |
|---------------|---------------|---------------|
| a. 2, 3, 1, 6 | b. 6, 4, 8, 5 | c. 3, 2, 1, 7 |
| d. 6, 2, 0, 9 | e. 5, 1, 4, 8 | f. 1, 4, 6, 0 |

Even and Odd Numbers

Even Numbers

Look at the following number pattern:

2, 4, 6, 8, 10, 12, 14, 16, 18,

This pattern starts with 2 and the next number is obtained by adding 2 to the previous number. These numbers are even numbers.

All numbers with 2, 4, 6, 8 and 0 in the ones place are called **even numbers**.

16, 204, 778, 4552, 8200, 9996 are the examples of even numbers.

Odd Numbers

Look at the following number pattern:

1, 3, 5, 7, 9, 11, 13, 15, 17, 19,

This pattern starts with 1 and the next number is obtained by adding 2 to the previous number. These numbers are odd numbers.

All numbers with 1, 3, 5, 7 and 9 in the ones place are called **odd numbers**.

15, 203, 777, 4551, 8207, 9999 are the examples of odd numbers.

All the numbers that can be put into groups of twos are called even numbers.
All the numbers that cannot be put into groups of twos are called odd numbers.

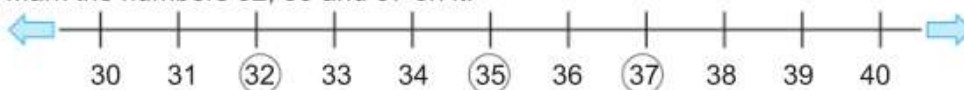


Rounding off Numbers

To round off means to make a number smaller or larger. Let us learn to round off numbers to the nearest tens.

Round off 32, 35 and 37 to the nearest tens.

- The given numbers lie between 30 and 40.
- Draw a number line from the number 30 to number 40.
- Mark the numbers 32, 35 and 37 on it.



- The number 32 lies between 30 to 40. It is close to 30 than to 40. So, 32 is rounded off to its nearest tens i.e. 30.
- The number 37 lies between 30 to 40. It is close to 40 than to 30. So, 37 is rounded off to 40.
- The number 35 is the mid-point of 30 and 40. In this case, round off to the higher ten i.e. 40.

Steps to follow while rounding off numbers:

Step 1: Observe the digit in the ones place.

Step 2: If the digit in the ones place is less than 5, then round off the number to the same tens.

Step 3: If the digit in the ones place is 5 or greater than 5, then round off the number to the higher tens.

Example 1 Round off 58 to the nearest ten.

Solution:

- The given number lies between the numbers 50 and 60.
- It has 8 in its ones place, which is more than 5.
- So, 58 is rounded off to 60.

Example 2 Round off 293 to the nearest ten.

Solution:

- The given number lies between the numbers 290 and 300.
- It has 3 in its ones place, which is less than 5.
- So, 293 is rounded off to 290.

Rounding off a number to a smaller number is also known as **rounding down**.
Rounding off a number to a bigger number is also known as **rounding up**.

Exercise 1.8

1. Complete the following table.

	Birds	Number of birds	Even/Odd
a.		<input type="text"/>	<input type="text"/>
b.		<input type="text"/>	<input type="text"/>
c.		<input type="text"/>	<input type="text"/>



2. Write even numbers between 4365 and 4380.

3. Complete the following patterns.

a. 1310, 1312, 1314, , 1318,

b. 2517, 2519, 2521, ,

c. 4001, , 4005, 4007,

4. Round off the following numbers to the nearest tens.

a. 27

b. 73

c. 316

d. 215

e. 611

f. 849

g. 704

h. 128

Math Lab Activity

Objective: To reinforce the concept of place value and face value.

Materials required: Coloured chalks

Procedure:

- Form 4 equal groups and select a group representative for each group.
- Label the four groups as '1000's group', '100's group', '10's group' and '1's group'.
- Draw 4 equal squares on the floor and label the squares as '1000', '100', '10' and '1'.
- A group representative from '1000's group' will call out a 4-digit number.
For example, 6203
- Appropriate number of students from each group will gather in the respective square.
For example; 6 students from the group labeled as 1000's group, will gather over the square labeled '1000'.
2 students from the group labeled as 100's group, will gather over the square labeled '100'.
No student from the group labeled as 10's group, will gather over the square labeled '10'.
3 students from the group labeled as 1's group, will gather over the square labeled '1'.

6. Similarly the group representative of '100's group', '10's group' and '1's group' will take turns to call out a 4-digit number and proceed with the activity.



Math Challenge

1. How many 4-digit numbers can be formed using the digits 2, 4, 5 and 7, where the place value of 7 remains 70 each time?
2. List out even as well as odd numbers from the numbers that are formed.

Math Around Me

"If nature has made anything more beautiful than a tiger then I do not know what it might be."

Stephen Fry

Tiger the national animal of India is on the verge of extinction. There are about 3890 tigers left in the wild today and it is estimated to become extinct in another 20 years from now. Who else but man is solely responsible for the killing of the tigers. This is because in the natural world the tiger's only predator is man. We therefore must act to stop the killing and save the tiger in the wild.



The United States has one of the largest populations of captive tigers, about 5000 tigers. They are not only found in zoos but in private homes and backyards.



Why are the tigers killed?



Tigers are hunted mainly for their skin, bones, teeth and claws. The bones of the tiger have been used to cure a variety of ailments for more than 1,000 years. The skin is used in clothing while the teeth and the claws are used as lucky charms.

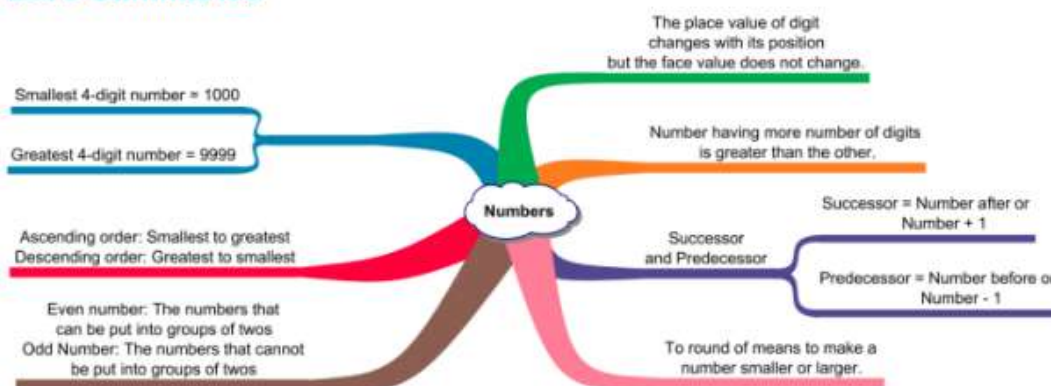


However, with the efforts of various organizations and the government of India towards saving the tigers, there has been a rise in the number of tigers from 1411 to 2226 in the past ten years.

Save the tigers and save our forests should be our slogan.

- Write the numeral in word and rewrite the statement.
There are about 3890 tigers left in the wild today.
- Write the place value of the marked digits.
There is a rise in the number of tigers from 1411 to 2226 in the past ten years in India.

Let's Summarize



Revision Exercise

- Write the number names for the following numbers.
a. 2810 b. 4678 c. 9284 d. 6560
- Match the numbers with their names.

Column A	Column B
a. 1116	i. three thousand sixty
b. 1009	ii. two thousand six hundred
c. 3060	iii. one thousand one hundred sixteen
d. 2600	iv. four thousand five hundred ninety-nine
e. 4599	v. five thousand
f. 5000	vi. one thousand nine

- Write the face value and the place value of each of the underlined digits. Also write the number in the expanded form.
a. 1392 b. 8601 c. 6538 d. 8047
- Separate the even and odd numbers from the given list of numbers.
5617, 3454, 6729, 9730, 7892, 6644, 5255, 6263, 6728, 6776



5. Fill in the blanks with '<', '>' or '=' sign.

a. 7653 7659

b. 1829 1670

c. 6383 6383

d. 9629 9640

e. 6529 4302

f. 1927 9127

6. Arrange the following numbers in the ascending as well as descending order.

a. 5638, 9740, 5621, 7281, 7290

b. 3271, 6218, 9012, 1639, 9052

c. 8293, 6374, 2661, 9249, 6578

d. 5367, 4563, 9782, 8038, 5638

7. Form the greatest as well as smallest number using the given digits.

a. 8,7,6,2

b. 2,3,0,5

c. 4,2,6,1

8. Circle numbers in which,

a. the place value of 5 is 5 2560, 7351, 1510, 2035, 4005, 5000

b. the place value of 4 is 40 6240, 8421, 4830, 2734, 8444, 9241

c. the place value of 6 is 6 6528, 8697, 7269, 5786, 7624, 6816

d. the place value of 7 is 700 2746, 7937, 6397, 8370, 2935, 9753

9. Write the number in the standard form.

a. $7000 + 60 + 7$

b. $5000 + 6$

c. $2000 + 800 + 9$

d. $3000 + 500 + 10 + 4$

10. Answer the following questions using the digits 6, 0, 2 and 9.

a. Form the smallest and greatest 4-digit even number using the given digits.

b. Form the smallest and greatest 4-digit odd number using the given digits.

11. Write the predecessor and successor of the following numbers.

a. 8765

b. 6711

c. 9082

d. 5367

12. Round off the following numbers to the nearest tens.

a. 42

b. 89

c. 103

d. 586

e. 431

f. 258

Weblinks

<http://www.magicpathshala.com/class3/math/introduction-to-4-digit-numbers/wallchart/48>

<http://www.magicpathshala.com/games/race/>

As on 11.01.2019

