# CLASS VI - MATHEMATICS

## WHOLE NUMBERS

VRINDA S, PGT CS, KV PORT TRUST
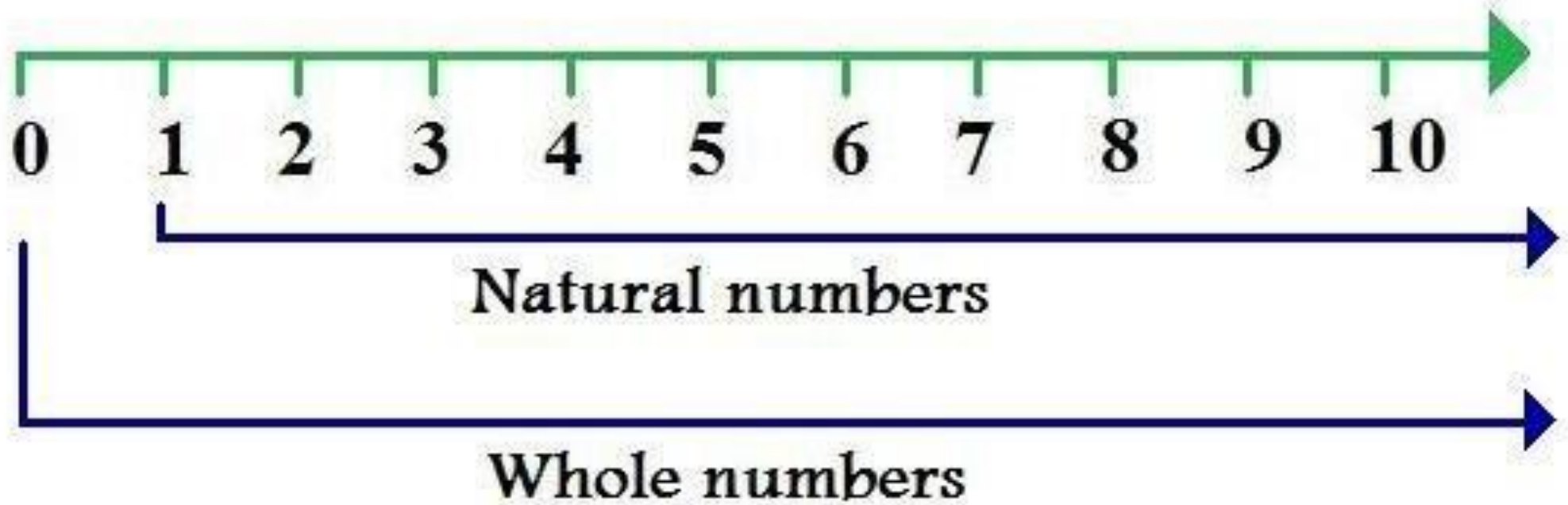
# NATURAL NUMBERS

**Natural Numbers**

1  2  3  4  5  6  7  8  9
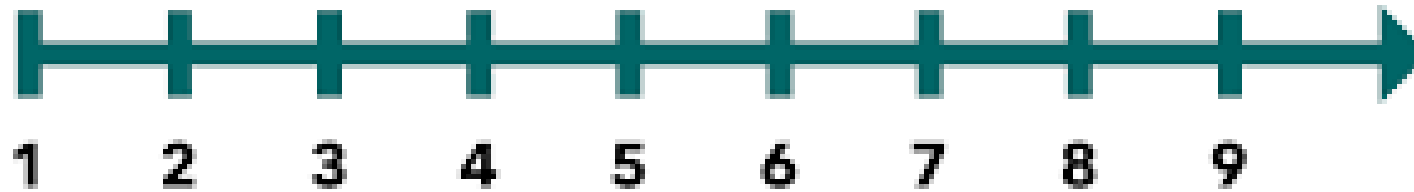
- Numbers on right are greater
- Numbers on left are smaller

# NATURAL VS WHOLE NUMBERS

# Difference Between Whole Numbers & Natural Numbers

| Whole Numbers | Natural Numbers |
|---|---|
| Whole Numbers: {0, 1, 2, 3, 4, 5, 6,.....} | Natural Numbers: {1, 2, 3, 4, 5, 6,......} |
| Counting starts from 0 | Counting starts from 1 |
| All whole numbers are not natural numbers | All Natural numbers are whole numbers |

# What are natural numbers?

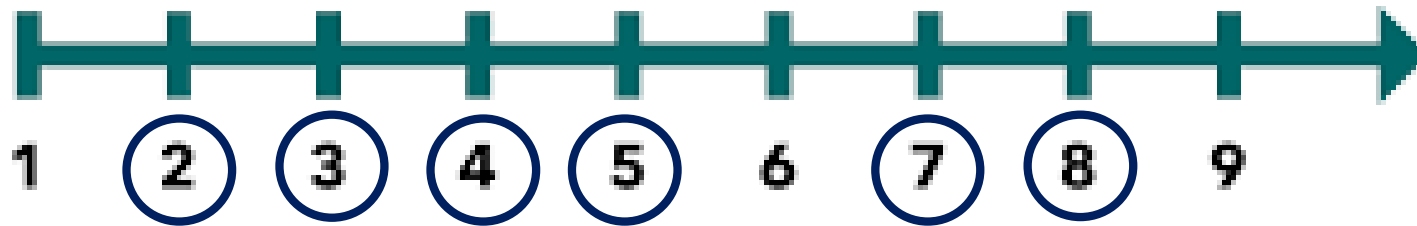- **Counting numbers are known as natural numbers.**

# What are whole numbers?

- **0 + natural number= whole number.**

# Predecessor and successor?

- **Number comes before   →Predecessor**
- **Number comes after     →Successor**

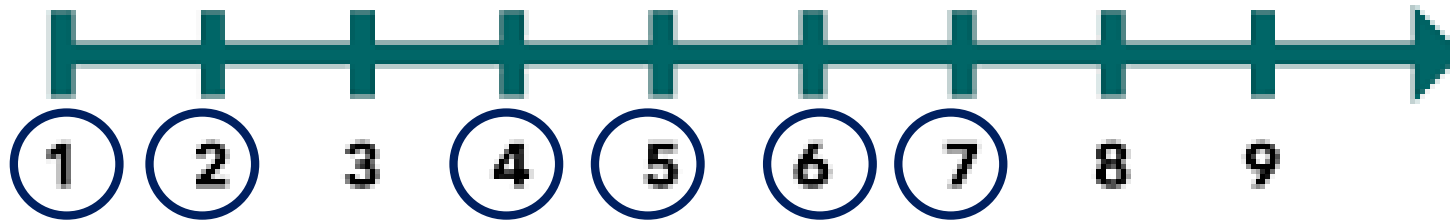# PREDECESSOR

## Natural Numbers



PREDECESSOR OF
1. 5 = 4
2. 8=7
3. 3=2

# SUCCESSOR

## Natural Numbers



**SUCCESSOR OF**

1. 6 = 7
2. 4=5
3. 1=2

# PRACTICE

- **Write the successor of :**

  (a) 2440701 (b) 100199

  2400701+1=2400702

  100199+1=100200

- **Write the predecessor of :**

  (a) 10000 (b) 208090

  10000-1=9999

  208090-1=208089

- **Write the next three natural numbers after 10999**

    **Next=after=successor → add 1**

    **10999+1=11000**

    **11000+1=11001**

    **11001+1=11002**

    **Answer: 11000,11001,11002**

- **Write the three natural numbers occurring just before 10001**

    **Before=Predecessor → subtract 1**

    **10001-1=10000**

    **10000-1=9999**

    **9999-1=9998**

    **Answer:10000,9999,9998**

- **In each of the following pairs of numbers, state which whole number is on the left of the other number on the number line. Also write them with the appropriate sign (>, <) between them.**
  a)530, 503

  503 is left of 530

  530>503

  b) 98765, 56789

  56789 is left of 98765

  98765>56789

# NUMBER LINE

Addition on number line



| | |
|---|---|
| 6 + 5 = 11 | 0 1 2 3 4 5 6 7 8 9 10 11 12 13 14 15 16 17 18 19 20 |
| 9 + 4 = | 0 1 2 3 4 5 6 7 8 9 10 11 12 13 14 15 16 17 18 19 20 |
| 11 + 5 = | 0 1 2 3 4 5 6 7 8 9 10 11 12 13 14 15 16 17 18 19 20 |
| 8 + 3 = | 0 1 2 3 4 5 6 7 8 9 10 11 12 13 14 15 16 17 18 19 20 |
| 2 + 12 = | 0 1 2 3 4 5 6 7 8 9 10 11 12 13 14 15 16 17 18 19 20 |
| 10 + 7 = | 0 1 2 3 4 5 6 7 8 9 10 11 12 13 14 15 16 17 18 19 20 |

# PROPERTIES OF WHOLE NUMBERS

- **What are the properties of whole numbers?**

The properties of whole numbers are:

1. Whole numbers are closed under addition and multiplication

2. Addition and multiplication of whole numbers is commutative

3. Addition and multiplication of whole numbers is associative

4. It obeys the distributive property of multiplication over addition

5. Additive identity of whole numbers is 0

6. Multiplicative identity of whole numbers is 1

# Closure Property

- If a and b are two whole numbers then

    a x b or  a+b is also a whole number.

2x3=6

20x30=600

2+3=5

20+30=50

## Commutative Property of Addition and Multiplication

- If a and b are any two whole numbers then,

a+b=b+a

2+3=5

3+2=5

axb=bxa

2x3=6

3x2=6

# Additive identity

- When a whole number is added to 0, its value remains unchanged, i.e., if x is a whole number then x+0=0+x=x

2+0=2

30+0=30

# Multiplicative identity

- When a whole number is multiplied by 1, its value remains unchanged, i.e., if x is a whole number then x.1 = x = 1.x

  2x1=2

  450x1=450

  0x1=0

# Associative Property

- If a, b and c are any whole numbers then

  a+(b+c)=(a+b)+c and ax(bxc)=(axb)xc

2+(3+5)=10

3+5=8

2+8=10

(2+3)+5=10

2+3=5

5+5=10

2x(3x5)=30

3x5=15

2x15=30

(2x3)x5=30

2x3=6

6x5=30

# Distributive Property

The distributive property of multiplication over addition is

ax (b+c)=(axb)+(axc)

The distributive property of multiplication over subtraction is

ax (b-c)=(axb)-(axc)

5x(100+2)

=5x100+5x2

=500+10=510

5x(100-2)

=5x100-5x2

=500-10=490

- **Multiplication by zero**
  - When a whole number is multiplied to 0, the result is always 0, i.e., x.0=0.x=0

- **Division by zero**
  - Division of a whole number by 0 is not defined, i.e., if x is a whole number then x/0 is not defined.

# EXERCISE 2.2 PAGE NO.40

# THANK YOU