

## Introduction to Whole Numbers

### NATURAL NUMBERS:

1, 2, 3, 4, .....

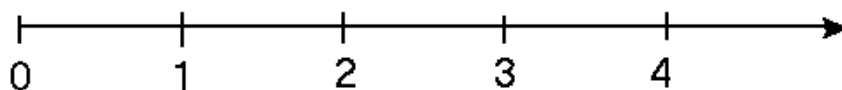
These are also known as the counting numbers.

### WHOLE NUMBERS:

0, 1, 2, 3, .....

Note that the set of Whole Numbers is the set of Natural Numbers and zero.

A graph of the Whole Numbers, as seen below, is called a number line.



The arrowhead at the right indicates that the line continues to the right.

The solid points indicate that only these values are used, not the values between them ( $\frac{1}{2}$ ,  $2\frac{1}{4}$ , etc.)

When two values on the number line are compared, the value to the right of the other is always greater than any value to its left.



Ex. 3 is greater than 2

2 is greater than 0

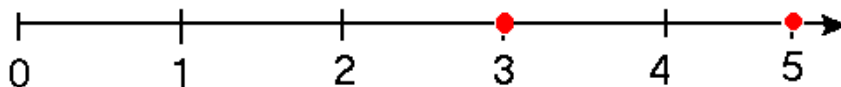
0 is less than 3

When two or more values are not the same (equal) a state of *inequality* is said to exist. In other words, one value must be greater than the other or one value is less than the other. The symbols to express these conditions are:

$>$  is the symbol for greater than

$<$  is the symbol for less than

Examples:



1)  $5 > 3$       5 is greater than 3

2)  $3 < 5$       3 is less than 5

### Place Values

When a whole number is written using the digits 0 → 9 it is said to be in the *standard form*. The position that each digit occupies determines its *place value*.

	100 millions
	10 millions
	1 millions
	100 thousands
6	10 thousands
4,	1 thousands
2	hundreds
7	tens
3	ones

This number can be written in what is called the expanded form, shown below:

<b>6 10 thousands</b>	<b>60,000</b>
+	+
<b>4 1 thousands</b>	<b>4,000</b>
+	+
<b>2 hundreds</b>	<b>200</b>
+	+
<b>7 tens</b>	<b>70</b>
+	+
<b>3 ones</b>	<b>3</b>

When a comma separates one group of 3 digits from another, these groups are known as periods.

Ex. 2, 374, 741 has three periods

741 is the “Ones” period

374 is the “Thousands” period

2 is the “Millions” period

### Rounding

Rounding is giving an approximate value for an exact number.

Ex. Round 48 to the nearest 10.

Soln. Since 48 is only two values from 50 as opposed to eight values from 40, the answer is 50

Ex. Round 22,748 to the nearest :

- 1.) Hundreds            22,700
- 2.) Ten                    22,750
- 3.) Thousand            23,000
- 4.) Ten Thousand        20,000