There are 8 STANDS:

1. Numbers
2. Algebra
3. Graph of function
4. Measurement
5. Geometry
6. Trigonometry
7. Statistics
8. Probability

STRAND 1: NUMBERS

SUB-STRANDS: NUMBERS AND OPERATIONS

KNOW STATEMENT: CLASSIFYING NUMBERS OR CLASSIFICATIONS OF NUMBERS

LEARNING OUTCOMES:

1. Identify the elements of these sets of numbers.
(Real, Irrational, Rational, Integers, Whole numbers and Natural Numbers)

2. List the elements of a SET from
   a. *Number line*
   b. *Set builder Notation*

3. Classify number set from a given list of numbers

4. Draw each of the above sets of numbers or subset (given in set builders notation) on the number line.

5. Draw VENN DIAGRAMM to show the relationship between sets of numbers.

Introduction to numbers :

1. Natural numbers (N). These numbers do not include zero because it is not used in the counting process.

$$N = 1, 2, 3, 4, 5…$$

2. To include zero, the set of natural numbers is renamed **whole numbers** (W).

$$W = 0, 1, 2, 3, 4, 5… \,\}$$

3. Numbers less than zero are called negative numbers. The set of positive and negative whole numbers is called the **integers** (I).

$$I = … -3, -2, -1, 0, 1, 2, 3 …$$

Integers are often represented ad positions on a number line.

$$-5\ -4\ -3\ -2\ -1\ 0\ +1\ +2\ +3\ +4\ +5$$

Note:
Positive numbers usually have no sign with them, e.g. +3 is written as 3.

When integers are divided into parts, positive and negative
Fractions are formed
This set of numbers is called
rational numbers (Q).

Numbers in Q cannot be listed in full. Examples of rational numbers are given below.

-2, -1, $-\frac{3}{5}$, 0, +0.2, $+\frac{5}{7}$, $+1\frac{1}{2}$, +3, +52

Some numbers cannot be expressed as fraction:

e.g. $\sqrt{2}$ = 1.414 213 56… is non - recurring and has an infinite number of decimal places; it is **not** a rational number.

Some constants in mathematics cannot be expressed as rational numbers:

e.g. π = 3.14159264.. (reading from the calculator) and has an infinite number of decimal

places.

These numbers which cannot be expressed as fractions are called **irrational numbers** (Q′). All these sets of numbers come under the collective name of **real numbers** (R).