The objectives of teaching and learning mathematics
at junior high school level, Myanmar

General aims

At the end of the basic education high level, students should be able to

a). gain basic mathematical knowledge.

b). acquire necessary mathematical skills,

c). apply mathematical knowledge in real-life situation and

d). have an interest in, and appreciation of mathematics, together with the development of math related values.

Specific objectives

a) To help the children to develop the proper understanding of basic mathematical concepts, structures, principles, and laws, etc, thereby fostering the ability and habit of developing more advanced ways of dealing with things mathematically/

b) To help the children to acquire different aspects of mathematical competence and skills preparation for further studies and professions.

c) To help the children to apply mathematical knowledge and skills as productively as possible in various everyday experiences.

d) To help the children to develop the habit of thinking mathematically thereby fostering the attitude of appreciating the importance of math.

Specific objectives due to text books

a) To help students understand quadratic functions, geometric figures and menstruation, treatment of numbers of cases and probability, and to encourage them to master basic knowledge's and skills, to develop their abilities to utilize them exactly and to deepen their appreciation of significance of mathematical way of viewing and thinking.

b) To help students understand exponential and trigonometric function, geometrical figures and equations, and variation of values of function and to develop their abilities to think and cope with mathematically in dealing with various phenomena.

c) To help students deepen their understanding of functions and limits, and integral calculus, and to develop their abilities to think and cope with mathematically in dealing with various phenomena.

d) To help students understand numbers and algebraic expressions, plane geometry, sequences or computation using computers.

e) To help students understand vectors, complex numbers and plane, algorithm using computers.

f) To help students understand matrix and linear computation, various curves, numerical computation or statistics.

Contents

Grade 1

Mathematics

- **Number system**

Natural number, integer, whole number, 4 operations, prime number, GCD, LCM, factor, decimal number, ratios, percent, averages

    Natural number, integer, number line, factor

    Fraction (multiplication, division)

    Decimal (multiplication, division), relation with fraction

    percent, averages, ratios

- **Polynomial**

Literal expression, monomial, coefficient, factor, equation

    Literal expression

    Solution the equation

    Addition and subtraction of   a polynomial

    Equation

- **Equation**

    Linear equation

- **Coordinate geometry**

    number line

    plotting the point on the coordinate plane

- **Statistics**

    Bar graph, Bar chart

- **Social mathematics**

    length, weight

    Myanmar measurement units(length, weight)

    British units(length, weight, capacity)

    Metric units(length, weight)

Mathematics

Geometry, geometric figures, straight line, area, volume

    Derivation of geometry, meaning, history

    Solid, plane figures

    Angles, tangent, arc, sector

    Properties of parallel lines, transversal lines

    Geometric construction

Used symbols

  Rational numbers, square roots, monomial, polynomial, inequation, point, axes,

$\leq$ $\geq$ $\rangle$ $\langle$,$\{\}$ $[]$ $\perp$ $\surd$ $\angle$

Grade 2

Mathematics

- **Number system**

    positive integer, negative integer, 4 operations, exponent, absolute value

    GCM,LCM, tests to be divisible

    Fraction, decimal

    Ratio, proportion, directly proportion, inversely proportion

    Average

    Percent

- **Formula**

    substitution methods

    making formula, application

- **Algebra**

    Coefficient, same & different coefficients

    Addition and subtraction of polynomials

    Using brackets according to calculation order

    Solve the polynomial

- **Equation**

    solve linear equation

    solving problems and word problems

- **Coordinate geometry**
  number line
  plotting the point on the coordinate plane

- **Statistics**
  Pi chart
  Line graph, histogram

- **Social mathematics**
  metric system
  making shopping list, Myanmar method (dividing the price in half, forth, etc.)
  basic concepts of maths in economics
  finding measurement in tons of wood
  finding measurement in blocks for send, stones of construction

Mathematics
  revision, basic knowledge concerning with geometry
  parallel lines, parallelogram, construction of parallelogram, construction of squares, rhombus, trapezium
  construction of triangles, congruent triangles, construction of triangle with sides or angles are given, 4 conditions of congruent triangles
  Triangles
  relation of angles and sides, medians of a triangle, height of a triangle, bisectors of an angle, perpendicular bisectors
  Symmetry
  Point on the Axis of Symmetry, point Symmetry, rotation, construction
  Proof with no systematic method
  Circle
  Revision, perpendicular line from centre to chord, properties of inscribed triangle in a semicircle, central angle, inscribed angle

- **Quantitative mathematics**
  areas of parallelogram, trapezium, triangle, quadrilateral, polygon, and volume of solid

- **Geometric Construction**

  bisectors of an angle, perpendicular line through a given line, perpendicular line to a line from given exterior point

Grade 3

Mathematics

- **Number system**

  Rational number

  Rational no, compare rational numbers, describing national number in an arrow, absolute value, 4 operations with rational numbers, other properties of rational numbers

  Exponent of rational numbers

  Base, exponent (power), multiplication and division with same base rational number, double exponent

  Square, square root

- **Algebra**

  monomials operations

- **Polynomial**

  factorization with grouping

  multiplication of the sum and difference of 2 monomials

  factors for difference of squares of 2 monomials

  trinomials with square numbers

  factorizing by completing the perfect square method of trinomials of squares

  binomial distribution

  factorizing a polynomial as product of two binomials

  factorizing methods for the square of a polynomial

  making power to 3 with the sum and difference of two monomials

  products which make the sum and difference of monomials with power 3

  GCM, LCD

- **Algebraic fractions**

  algebraic fractions, smallest algebraic fractions, 4 operations with

algebraic fractions
equations of algebraic fractions, challenge

- **Inequality**
  properties of inequality, problems

- **Equations**
  equations with 2 variables
  quadratic equations, problem solving, challenge
  problem solving the equations with coefficients
  making formulas

- **Coordinate geometry**
  Coordinate plane, plotting points on the coordinate plane

- **Statistics**
  Frequency Tables, Histogram, frequency polygon

- **Ratios, proportion, percent, average**
  directly proportion, inversely proportion, proportional expression, percent, average

- **Social mathematics**
  metric system
  interest, surplus, deficit, fixed deposits, basic mathematics concepts on cooperation, taxes

Mathematics

- **Congruent triangles**
  conditions for congruent triangles

- **Quadrilaterals**
  interior and exterior of a quadrilateral
  convex and concave quadrilaterals, sum of angles
  special quadrilaterals

construction of quadrilaterals

- **Circles**
  tangents, tangent to the circles from an given exterior point, construction
  with tangents
  intersection two circles, common chord, common tangent
  measurement of arcs with degrees, conditions with finding measurement
  of arcs

- **Pythagoras Theorem**

- **Quantity mathematics**
  length of circumference, measurement of arcs
  π, area of a circle, area of a sector, cylinder

- **Basic geometric constructions**
  bisecting a given line
  drawing a parallel lines with given line
  bisecting a given chord

- **Angles of direction and surveying**
  Angles of direction, one round direction
  Clockwise and anti-clockwise direction
  surveying the angle of direction and distance
  surveying and drawing map