**Mathematics**

**Topics for Mid-Term Assessment**

1. **Arithmetic**

Numbers, Percentages, Decimals and Fractions, L.C.M. and H.C.F., Square and Cube Roots, BODMAS, Rounding off, Estimation and Approximation, Indices, Standard Form, Limits of Accuracy

1. **Algebra**

Linear Expressions and equations, Quadratic expressions and equations, simplifying Algebraic Fractions, Formulae manipulation and substitution, Expansion and Factorization, Simultaneous equations, Indices, Word Problems, Linear Inequalities

1. **Area and Perimeter of Simple geometrical figures**

Area and Perimeters of Simple shapes (triangles, quadrilaterals, circles, composite shapes), Unit conversions, Scales and maps

1. **Everyday Math/ Arithmetical Problems**

Time, Rate, Ratio and Proportion, Percentages, Personal and Household Finance, Profit /Loss, Discount/Sale, Commission, Tax, Unit and Money Conversions, Simple Interest, Hire Purchase

1. **Coordinate Geometry**

Plotting Points and Functions on Graph, Gradient/Slope of a line, Equation of a straight line, Distance between two given points, Midpoint between two given points, Graphical Solutions to problems

1. **Graphs in Practical Situations/ Kinematics**

Travel graphs : distance-time and speed-time graphs, Conversion graphs

1. **Functions**

Simple linear and Quadratic Functions, Finding Inverse Function

1. **Graphs of Functions**

Knowledge of Different graphs of Functions (Linear, Quadratic, Reciprocal, and Exponential), Plotting Graphs of Functions, finding graphical solutions to functions, Gradient of Curves by drawing Tangents

1. **Graphs of Linear Inequalities**

Identifying area defined by inequalities on Graph, writing Inequalities to represent an area

1. **Matrices**

Addition, Subtraction, Multiplication of Matrices; Describing Matrices; Finding Inverse of a Matrix; Using Inverse to solve Simultaneous Equations

1. **Number Patterns and Sequences /Problem Solving**

Finding more terms in a sequence, finding Formula for nth term, Reasoning and Problem solving

1. **Loci and Construction**
* **2-D loci** \_ Four basic constructions, Constructing triangles, quadrilaterals, Perpendiculars and angle bisectors. Intersection of Loci and Shading areas.
* **3-D Loci** \_ Describing 3-D Loci
1. **Symmetry**

Line and Rotational Symmetry in 2-D shapes and 3-D objects

1. **Transformations**
* Reflection
* Rotation
* Translation
* Enlargement
* Stretch
* Shear

Drawing images, describing transformations, using transformation notation, transformation matrices

1. **Trigonometry and Further Trigonometry**
* Pythagoras’s Theorem
* Trigonometric Ratios
* Sine and Cosine Rules
* Area of triangle
* Bearings
* Angle of elevation/ depression
* 3-D problems
1. **Angle properties of Circles**