Year 3 Express Mathematics

	Topics
Term 1	
0	**Revision (Algebra)**
0.1	Factorization, Simplification, Manipulation, Solving, Subject of Formula
1	**SOLUTIONS OF QUADRATIC EQUATIONS**
1.1	Completing the Squares, and Quadratic Formula
1.2	Fractional equations that can be reduced to quadratic equations.
1.3	Graphical solutions of Quadratic Equations
1.4	Word problems involving Quadratic Equations
2	**LINEAR INEQUALITIES**
2.1	Properties of inequalities
2.2	Number lines
2.3	Solving Simultaneous inequalities.
2.4	Word problems involving linear inequalities .
3	**INDICES**
3.1	Laws of indices
3.2	Standard form $A \times 10^n$, where n is an integer, and $1 \leq A < 10$
3.3	Exponential Equations : $a^x = b$ where $b = a^n$
4	**COORDINATE GEOMETRY**
4.1	Calculation of gradient, line segment
4.2	Find equation of straight line $y = mx + c$
4.3	Solve geometrical problems
Term 2	
5	**FUNCTIONS AND GRAPHS**
5.1	Sketch the graphs of quadratic functions given in the form • $y = \pm (x - p)^2 + q$ • $y = \pm (x - a)(x - b)$
5.2	Graphs of functions of the form $y = ax^n$ where • $n = 0, 1, 2, 3$ • $n = -2, -1$
5.3	Graphs of sums of power functions of not more than 3 terms of the form ax^n
5.4	Graphs of exponential functions $y = ka^x$ where a is a positive integer
5.5	Gradients of curves
6	**FURTHER TRIGONOMETRY**
6.1	Trigonometric ratios of acute and obtuse angles
6.2	Area of Triangles
6.3	Sine rule and Cosine Rule
7	**APPLICATION OF TRIGONOMETRY**
7.1	Bearings
7.2	3 Dimensional Problems
Term 3	
8	**ARC LENGTHS AND SECTOR AREAS**
8.1	Arc length and Area of sector of a circle
8.2	Area of segment of a circle
11	**GEOMETRICAL PROPERTIES OF CIRCLES**
11.1	Symmetrical Properties of Circles
11.2	Angle Properties of Circles
11.3	Tangents to a circle
11.4	The Alternate Segment Theorem

Term 4	
12	**Problems in Real-World Context**
12.1	Profit, Loss, Simple and Compound Interest, Hire Purchase
12.2	Utilities bills, Money Exchange, Taxation
12.3	Problems in Real-World Context
13	**Mensuration (Long Word Problems)**
13.1	Mensuration (Long Word Problems)