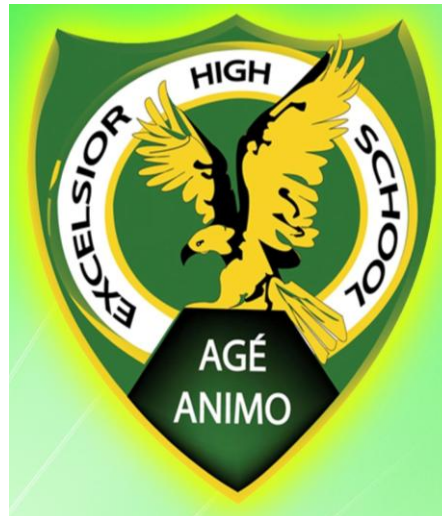


Excelsior High School

Mathematics Department

Grade 8



Grade 8

Scope & Sequence

Grade 8

Excelsior High School Mathematics Department



Scope and Sequence

Term 1: Christmas (September to December)

Topic: Number Theory/Measurement/Geometry and Trigonometry/Algebra

Duration: 14 weeks (max: 72 contact periods)

Date/Topic	Objectives	Resources	Possible Assessment
Term 1 Week 1 Number Theory	(a) Base ten Place Value System (Revision) (b) Formal application of the place-value concept to numbers in bases other than 10: <i>(i) the value of a digit in a numeral in any base;</i> <i>(ii) conversion from base 10 to other bases and vice versa;</i>		
Term 1 Week 2 Plane Figures	(a) Types of plane figures (Revision) <i>(i) special names for polygons with n sides $3 \leq n \leq 12$</i> <i>(ii) identification and sketching of n-sided polygons</i> (b) Angle properties: <i>(i) sum of interior angles;</i> <i>(ii) angles formed when two or more straight lines are cut by a transversal: alternate, corresponding, vertically opposite, complementary, supplementary, co-interior/allied; special relationship between these sets when the lines that are cut are parallel</i>		
Term 1 Week 3 Number Theory	(a) Formal application of the place-value concept to numbers in bases other than 10: <i>(i) the operations, A, S, M with numbers in bases besides 10;</i> <i>(ii) application of (i) - (iii) to non-metric systems of measurement</i>		
Date/Topic	Objectives	Resources	Possible Assessment

Term 1 Week 4 Plane Figures	(a) Angle properties: (i) relationship between ext. angles and interior opposite angles; (ii) calculation of missing int. angles of a triangle and of ext. angles of a triangle		
Term 1 Week 5 Number Theory	(a) Extension of the use of common fractions to ratios: (i) a ratio: the concept; (ii) symbolic representation of a ratio: a to b or a : b, or a / b (iii) ratios in their simplest forms;		
Term 1 Week 6 Circle and Circumference	(a) The circle, enclosed by a curved line: (i) identification and names of parts of the circle centre, radius, diameter, circumference, arc, segment, sector, chord and the relationships among them; (b) An irrational number: concept and examples; (i) introduction of π ; use of the more commonly used approximate values for π (c) Measurement around plane shapes with curved lines: (i) circumference of circle; (ii) length of any part/arc of the whole circumference ($\frac{\theta}{360} \times 2\pi r$);		
Week 7	Monthly Test 1		
Term 1 Week 8 Number Theory	(a) Extension of the use of common fractions to ratios: (i) relationship between equal ratios and equivalent fractions; (ii) division of a total in a given ratio (unequal sharing) (iii) increase or decrease in value by a given ratio (b) Solution of worded problems involving ratio		
Term 1 Week 9 Perimeter and Circumference	(a) Measurement around plane shapes with curved lines: (i) perimeter of a sector of a circle (ii) perimeter of composite shapes bounded by straight line(s) and semi-circular arcs or arcs of quarter circles		
Date/Topic	Objectives	Resources	Possible Assessment
Term 1 Week 10	(a) Extending the concept: (i) percent: a ratio that compares a number to 100; expression of a ratio as a percent		

Number Theory	(b) Finding approx. values of decimal fractions and mixed numbers correct to (i) 3 or more decimal places; (ii) 1 or 2 significant figures		
Term 1 Week 11 Algebra	(a) Determining HCF and LCM of algebraic expressions (b) Simplification of algebraic expressions involving (i) the removal of brackets before the collection of like terms; (ii) working with simple fractions such as $\frac{x}{3} + \frac{x}{5} - \frac{x}{10} \text{ and } \frac{xy}{5} \times \frac{10}{x}$		
Term 1 Week 12 Indices	a) Index (Revision) (b) Evaluation of numbers with integral indices: <i>Laws of indices</i> (i) $a^m \times a^n = a^{m+n}$ (ii) $a^m \div a^n = a^{m-n}$ (iii) a^0 (iv) $(a^m)^n = a^{mn}$ (v) $a^{-m} = \frac{1}{a^m}$		
Term 1 Week 13 Algebra	(a) Solution of algebraic equations with one variable, of the forms: (i) $2(p + 7) = 3(p - 1)$, $y - 3(2y + 4) = 8$ (ii) $\frac{x-3}{4} = 7$ (iii) $\frac{5}{x} = -15$ (b) Problem solving involving the formation and solution of equations of the forms already introduced, across topics and strands		
Week 14	Monthly Test 2		

Term 2: Easter (January to March)

Topic: Measurement/Statistics/Sets

Duration: 12 weeks (max: 54 contact periods)

Date	Objectives	Resources	Possible Assessment
Term 2 Week 1 Area	a) The area covered by: (i) <i>triangles where length of sides are given or can be deduced</i>		
Term 2 Week 2 Statistics	(a) Measures of central tendency (i) <i>three 'averages' commonly used:</i> <ul style="list-style-type: none"> • <i>the arithmetic mean;</i> • <i>the median;</i> • <i>the mode</i> (ii) <i>computation of the median and mode from a set of raw scores (not necessarily tabulated)</i>		
Term 2 Week 3 Area	a) The area covered by: (ii) <i>quadrilaterals (square, rectangle, trapezium, parallelogram, kite-shaped)</i>		
Term 2 Week 4 Statistics <i>Thursday and Friday - Consultation Days</i>	(a) Measures of central tendency (iii) <i>computation of the mean not necessarily tabulated</i>		
Date/Topic	Objectives	Resources	Possible Assessment
Term 2 Week 5	(a) The area covered by: (i) <i>Circle</i>		

<p>Area</p>	<p>(ii) Any portion/sector of a circle</p> <p>(b) Composite shapes: any combination of shapes</p> <p>(c) Problem-solving of area involving area concepts and procedures</p>		
<p>Term 2 Week 6 <i>All Topics</i></p>	<p style="text-align: center;">Revision</p> <p>Number Theory, Plane Figures, Circle/ Circumference, Algebra, Indices, Area, Statistics</p>		
<p>Week 7</p>	<p>Mid Year Examination</p>		
<p>Week 8</p>	<p>Mid Year Examination</p>		
<p>Term 2 Week 9 Statistics</p>	<p>(a) Measures of central tendency</p> <p>(iv) <i>determination of the most appropriate 'average' to use in a given situation or for a particular purpose</i></p> <p>a) Construction, reading, interpretation of:</p> <p><i>pictograms</i></p>		
<p>Term 2 Week 10 Sets</p>	<p>(a) Additional concepts and related set language and symbols:</p> <p>(i) <i>the number of subsets in a set of n elements;</i></p> <p>(ii) <i>equal and equivalent sets;</i></p> <p>(iii) <i>finite and infinite sets;</i></p> <p>(iv) <i>the universal set, &, the complement of a set</i></p>		
<p>Term 2 Week 11 Statistics</p>	<p>a) Construction, reading, interpretation of:</p> <p><i>bar charts and pie charts</i></p> <p>b) Selection and use from the graphs already introduced the one(s) most suitable to represent a given set of data for a particular purpose</p>		
<p>Term 2 Week 12 <i>**Holy</i> <i>Thursday/</i> <i>Good Friday</i></p>			

Term 3: Summer (April to July)

Topic: Algebra/Statistics/Consumer Arithmetic/Sets/Relations & Functions/Matrices

Duration: 13 weeks (max: 60 contact periods)

Date	Objectives	Resources	Possible Assessment
Term 3 Week 1 Sets	(d) The use of the result to solve simple numerical problems (b) Use of set notation to represent the solution of linear inequalities with one variable		
Term 3 Week 2 Matrices	2. 1 (a) a matrix, a type of table: (i) use of a matrix to show numerical information! statistical data in rows and columns (b) working with matrices: (i) the order of a matrix, number of rows and columns in that sequence; (ii) the type of matrix based on its order; (iii) addition and subtraction of matrices of the same order;		
Term 3 Week 3 Sets	(c) (iii) The construction and interpretation of Venn diagrams which show - the universal set with no more than two sets and/or subsets; (iv) - a set & its complement		
Term 3 Week 4 Matrices	2. 1 (b) working with matrices: (iv) multiplication of any matrix by a constant (c) use of matrix addition, subtraction and multiplication to solve simple algebraic problems		
Week 5	Monthly Test 3		
Date/Topic	Objectives	Resources	Possible Assessment
Term 3 Week 6 Relations &	1.1(a) examination of the connection or relationship (iii) between a relation & an equation showing the same information (b) pictorial representation of a relation by (iii) showing a set of ordered pairs on a coordinate/Cartesian plane; finding the domain and/or the range from the graph		

Functions	.		
Term 3 Week 7 Matrices	2.1 (c) use of matrix addition, subtraction and multiplication to solve simple algebraic problems		
Term 3 Week 8 Relations & Functions **Labour Day/ Midterm	1.1 -(c) types of relations: (ii) relations which are functions: •• special properties of functions; •• identification of the function rule;		
Term 3 Week 9 Relations & Functions	1.1 -(c) (iii) use of function notation: $f(x) = x - 4$, $y \rightarrow f(x)$, $f: x \rightarrow x - 4$, to represent the function rule; (iv) evaluation of $f(x)$ for a given value of x and the function rule (the <i>input -output</i> relationship);		
Term 3 Week 10 Relations & Functions	1.1 (d) use of function rule to construct and interpret flow <i>diagrams</i> .		
Term 3 Week 11 <i>All Topics</i>	Revision		
Week 12	End of Year Examination		
Week 13	End of Year Examination		

