Year 9 Mathematics Curriculum Map

NUMBER

SHAPE, SPACE AND MEASURE

ALGEBRA

RATIO AND PROPORTION

STATISTICS AND PROBABILITY

Year 9 KS3 Mathematics

Curriculum Overview

Autumn 1 Number properties Calculator	**Autumn 2** Algebra Perimeter and area
Spring 1 Statistics Probability	**Spring 2** Fraction/Decimals/Percentages Maths with money
Summer 1 Ratio and Proportion Sequences	**Summer 2** Angles properties Geometrical reasoning/Pythagoras

Interleaving topics

Year 9 Unit of work	Skills to learn	Notes/Real life application/resources
Autumn 1 **Number Properties** **Place Value** **Adding and Subtracting Integers** **Multiplying Integers** **Dividing with Integers** **Multiplying and Dividing by a Power of Ten** **Multiples of a Number** **Factors of a Number** **Prime Numbers** **Prime factors** **HCF** **LCM** **Standard form** **Square and Cube Numbers** **Order of Operations** **Use of a Calculator** **Listing Strategies**	I can apply the order of operations I can round to any power of 10 I can round to decimal places and significant figures I can use approximations to estimate I can find errors in estimating questions I can read and write numbers in words and figures and understand place value I can order decimals and negatives I can add and subtract numbers, decimals and negatives I can multiply and divide with integers and decimals and negatives I know the prime numbers I can write numbers in prime factor form I can find HCF and LCM of numbers I can find the HCF and LCM of large numbers using Venn diagrams I can use calculators for all range of calculation I can apply systematic listing strategies I can find squares, cubes and roots I can write numbers in index notation I can add and subtract in index form I can multiply and divide numbers written in index notation I can convert between standard form and ordinary numbers I can apply the order of operations	- Counting combinations in real-life contexts - Problems involving large numbers (e.g. heartbeats in an average lifetime) - Scientific questions involving standard form - Party food - keywords - Freya model

	I can multiply and divide with integers and decimals I can use standard units of mass, length, time, money and other measures (including standard compound measures) using decimal quantities where appropriate I can round numbers to make sensible estimations I know the prime numbers I can write numbers in prime factor form I can find HCF and LCM of numbers I can solve simple problems using HCF, LCM and prime numbers I can find the HCF and LCM of large numbers using Venn diagrams I can use an extended range of calculator functions I can apply systematic listing strategies including use of the product rule for counting I can estimate powers and roots of any given power I can use the laws of indices with fractional, negative and zero power I can multiply and divide numbers written in index notation I can use the laws of indices with fractional, negative and zero power I can rewrite numbers to different bases I can convert between standard form and ordinary numbers I can multiply and divide numbers in standard form	

	I can add and subtract in standard form I can simplify a surd I can add and subtract surds I can multiply and divide surds I can expand brackets involving surds I can rationalise the denominator of a fraction	
Assessment 1		
<u>Autumn 2</u> **<u>Algebra</u>** **Collecting Like Terms** **Simplifying products and quotients** **Substitution into expressions** **Changing the Subject of a Formula** **Expanding Brackets** **Factorising Terms** **Factorising Expressions with Powers** **Expanding Quadratics**	I can use notation and symbols correctly I can use function machines I can simplify expressions by collecting like terms I can multiply together simple algebraic expressions I can expand single brackets I can expand and simplify expressions I can expand double brackets I can factorise simple expressions I can solve simple linear equations (1 or 2 step questions) I can show inequalities on number lines I can write down whole number values that satisfy an inequality	Kinematics formulas – simple *suvat* Braking distances Word problems Finding Perimeter/Area/Volume of shapes using algebra Keywords - Freya Model

Factoring Quadratics **Inequalities** **Perimeter/Area/Volume** **Shape problems with ALgebra**	I can argue mathematically to show algebraic expressions are equivalent. I can set up simple equations from word problems and derive simple formulae I can substitute numbers into expressions involving brackets and powers I can derive a simple formula, including those with squares, cubes and roots I can solve equations involving brackets I can solve equations with unknowns on both sides I can solve equations with unknowns on both sides involving brackets I can substitute values into expressions and formula I can simplify expressions by collecting like terms I can factorise simple expressions I can expand single and double brackets and simplify I can solve linear equations I can solve linear equations with unknowns on both sides I can solve linear equations involving brackets I can solve linear equations involving fractions I can factorise quadratic expressions (1x2) I can factorise quadratic expressions (ax2) I can solve quadratic equations I can simplify algebraic fractions including quadratics I can change the subject of formula I can change the subject of formula involving factorising I can show inequalities on a number line	

	I can use the correct notation to show inclusive and exclusive inequalities I can solve an inequality and show the solution set on a number line; I can Solve angle or perimeter problems using algebra. I can solve two inequalities in *x*, find the solution sets and compare them I can set up and solve linear equations to solve a problem; I can derive a formula and set up simple equations from word problems, then solve these equations, interpreting the solution in the context of the problem; I can substitute positive and negative numbers into a formula, solve the resulting equation including brackets, powers or standard form. I can use and substitute formulae from mathematics and other subjects, including kinematics formulae I can do simple proofs and use of ≡ in "show that" style questions I can find the area and perimeter of rectangles **(including simple algebra in all)** I can find the perimeter of a compound shape I can find the area of a triangle I can find the area of a parallelogram I can find the area of a trapezium I can find the area of compound shapes I can name parts of a circle I can find the circumference of a circle I can find the area of a circle I can find the area and perimeter of more complex shapes that include circles	

	(include algebra in all) I can find the volume of a cuboid I can find the surface area of a cuboid I can find the surface area of prisms I can find the volume of prisms I can find the volume of a cylinder I can find the surface area of a cylinder	
Assessment 2		s