YEAR 7 - Delta   KS3 Maths Progress

TERM	UNIT / LESSON	OBJECTIVES
AUTUMN	**1 Analysing and displaying data**	
Delta 3	**Delta 3:** 4.1 STEM: Data collection	Identify sources of primary and secondary data.
		Choose a suitable sample size.
		Understand how to reduce bias in sampling and questionnaires.
		Identify a random sample.
Delta 1	1.1 Two-way tables and bar charts	Use two-way tables.
		Interpret and draw dual bar charts and compound bar charts.
	1.2 Averages and range	Choose the most appropriate average for a set of data.
		Find the mode, median, mean and range for a set of data.
		Compare sets of data using averages and the range.
	1.3 Grouped data	Group discrete and continuous data.
		Draw and interpret grouped frequency diagrams.
	1.4 More graphs	Interpret and draw line graphs.
		Recognise when a graph is misleading.
	1.5 Pie charts	Draw and interpret pie charts.
	1.6 STEM: Scatter graphs and correlation	Graph paper and draw scatter graphs.
		Describe the correlation between two sets of data.
		Draw a line of best fit and use it to estimate values.
AUTUMN	**2 Number skills**	
	2.1 Factors, primes and multiples	Understand the difference between multiples, factors and primes.
		Find all the factor pairs of any whole number.
		Find the HCF and LCM of two numbers.

		2.2 Using negative numbers	Add, subtract, multiply and divide positive and negative numbers.
		2.3 Multiplying and dividing	Use mental and written strategies for multiplication.
			Divide a 3-digit integer by a single or 2-digit integer.
		2.4 Squares and square roots	Use index notation for squares and square roots.
			Calculate with squares and square roots.
		2.5 More powers and roots	Carry out calculations involving squares, cubes, square roots and cube roots.
			Use factorising to work out square roots and cube roots.
			Solve word problems using square roots and cube roots.
		2.6 Calculations	Estimate answers to complex calculations.
			Carry out calculations involving brackets.
HALF-TERM TEST			
AUTUMN		**3 Equations, functions and formulae**	
		3.1 Simplifying algebraic expressions	Simplify expressions by collecting like terms.
		3.2 Writing algebraic expressions	Construct expressions using four operations.
		3.3 STEM: Using formulae	Substitute into formulae.
		3.4 Writing formulae	Derive formulae from a description.
		3.5 Brackets and powers	Expand expressions involving brackets.
			Substitute into expressions involving powers.
		3.6 Factorising expressions	Factorise an algebraic expression.
AUTUMN		**4 Fractions**	
		4.1 Working with fractions	Compare and simplify fractions.
			Write one number as a fraction of another.

		Work out simple fractions of amounts.
	4.2 Adding and subtracting fractions	Write an improper fraction as a mixed number.
		Add and subtract fractions.
	4.3 Fractions, decimals and percentages	Work with equivalent fractions, decimals and percentages.
		Use division to write a fraction as a decimal.
	4.4 Multiplying and dividing fractions	Work out fractions of amounts.
		Divide an integer and a fraction by a fraction.
		Multiply a fraction by a fraction.
	4.5 Working with mixed numbers	Add and subtract mixed numbers.
		Enter time as a mixed number into a calculator.
		Multiply and divide a mixed number.
END OF TERM TEST		
SPRING	**5 Angles and shapes**	
	5.1 Angles and parallel lines	Work out unknown angles when two or more lines meet or cross at a point.
		Work out unknown angles involving parallel lines.
	5.2 Triangles	Describe the line and rotational symmetry of triangles.
		Understand how to prove that a result is true.
		Use properties of a triangle to work out unknown angles.
		Use the properties of isosceles and equilateral triangles to solve problems.
	5.3 Quadrilaterals	Describe the line and rotational symmetry of quadrilaterals.
		Describe the properties of quadrilaterals.
		Solve problems involving quadrilaterals.
	5.4 Polygons	Work out the interior and exterior angles of a polygon.

SPRING	6 Decimals	
	6.1 Ordering decimals	Write decimals in ascending and descending order.
	6.2 Rounding decimals	Round to decimal places.
	6.3 Adding and subtracting decimals	Add and subtract decimals.
	6.4 Multiplying decimals	Multiply a decimal by an integer.
		Use place value to multiply decimals.
	6.5 Dividing decimals	Divide a decimal by a whole number.
		Divide a number by a decimal.
	6.6 Fractions, decimals and percentages	Convert between fractions decimals and percentages.
		Compare different proportions using percentages.
	6.7 FINANCE: Working with percentages	Calculate percentages with and without a calculator.
		Calculate percentage increases and decreases.
		Work backwards to solve a percentage problem.
HALF-TERM TEST		
SPRING	7 Equations	
	7.1 Solving one-step equations	Write and solve simple equations.
		Solve problems using equations.
	7.2 Solving two-step equations	Write and solve two-step equations.
		Write and solve equations that have brackets.
	7.3 More complex equations	Write and solve equations with letters on both sides.
	7.4 Trial and improvement	Solve equations that include x^2 and x^3
		Use trial and improvement to find solutions to 1 decimal place.
END OF TERM TEST		
SUMMER	8 Multiplicative reasoning	
	8.1 STEM: Metric and imperial units	Convert between metric and imperial units.
		Use metric units.

		8.2 Writing ratios	Write a ratio in its simplest form.
			Simplify a ratio expressed in fractions or decimals.
		8.3 Sharing in a given ratio	Share a quantity in 2 or more parts in a given ratio.
		8.4 Proportion	Understand the relationship between ratio and proportion.
		8.5 Proportional reasoning	Solve simple word problems involving ratio and direct proportion.
			Solve simple word problems involving ratio and inverse proportion.
		8.6 Using the unitary method	Solve problems involving ratio and proportion using the unitary method.
			Write ratios in the form $1 : n$
			Solve best buy problems.
SUMMER		**9 Perimeter, area and volume**	
		9.1 Triangles, parallelograms and trapeziums	Calculate the area of triangles.
			Calculate the area of parallelograms.
			Calculate the area of trapeziums.
		9.2 Perimeter and area of compund shapes	Calculate the perimeter of shapes made from rectangles and triangles.
			Calculate the area of shapes made from rectangles and triangles.
		9.3 Properties of 3D solids	Identify nets of different 3D shapes.
			Know the properties of 3D shapes.
		9.4 Surface area	Calculate the surface area of a cube.
			Calculate the surface area of a cuboid.
		9.5 Volume	Calculate the volume of a cube.
			Calculate the volume of a cuboid.
			Convert between different units of volume: cm³, ml and litres.
		9.6 STEM: Measures of area and volume	Convert between metric measures for area and volume.
HALF-TERM TEST			
SUMMER		**10 Sequences and graphs**	

	10.1 Sequences	Work out the terms of an arithmetic sequence using the term-to-term rule.
		Work out a given term in a simple arithmetic sequence.
	10.2 The nth term	Work out and use expressions for the n th term in an arithmetic sequence.
	10.3 Pattern sequences	Generate sequences and predict how they will continue.
		Recognise geometric sequences and work out the term-to-term rule.
	10.4 Coordinates and line segments	Use positive and negative coordinates.
		Work out the midpoint of a line segment.
	10.5 Graphs	Draw straight-line graphs.
		Recognise straight-line graphs parallel to the axes.
		Recognise graphs of $y = x$ and $y = -x$
END OF TERM TEST		
END OF YEAR TEST		