Mulberry Academy Woodside

Mathematics

Curriculum Overview 2023 - 2024

Curriculum intent statement:

At Mulberry Academy Woodside all students have the opportunity to become the best mathematicians that they can be. To do this, our mathematics curriculum is designed to make mathematics accessible to all. It intends to develop a life-long love of mathematics that challenges students to be curious as well as develop skills that they will need in their daily lives and future careers. The curriculum provides students with the following:

- Nurture a love of mathematics and produce confident mathematicians that appreciate the value of Mathematics and its relevance in everyday life.
- Develop mathematical knowledge and skills that students can apply confidently, opening up opportunities to better careers and lives.
- Produce inquisitive, independent learners who love to question and problem solve with resilience.
- Remove the fear and mystery that historically surrounds the subject of maths and to remove the obstacle of mathematical illiteracy.
- Making maths accessible for all of our students.
- Gain fluency in mathematics, to facilitate problem solving and mastery in mathematics.
- Provide multiple pathways for all learners to securely develop mathematical cognition from concrete to abstract such that learned skills and knowledge can be used in standard and non-standard scenarios.
- Support students to learn conceptually with depth in thinking and breadth in application.
- Enable learners to articulate their thinking with increasing proficiency of mathematical language.
- Develop an appreciation of the historical evolution of a discipline that spans continents and cultures.
- Understand the relevance of Mathematics in human endeavour historically, presently and for the future.

KS3		AUTUMN TERM		SPRING TERM		SUMMER TERM	
		TERM 1A	TERM 1B	TERM 2A	TERM 2B	TERM 3A	TERM 3B
YEAR 7	KNOWLEDGE	**Exploring Sequences. Using and Understanding Algebraic Notation. Equality and Equivalence.**	**Place Value and Ordering. Fraction, Decimal and Fraction and Percentage Equivalence.**	**Addition and Subtraction. Multiplication and Division.**	**Operations and Equations with Directed Numbers. Adding and Subtracting Fractions.**	**Constructing, Measuring and Geometric Notations. Geometric Reasoning.**	**Number Sense. Sets and Probability. Prime Numbers and Proof.**
	SKILLS	Describe and continue sequences in a diagram, number forms, linear and non-linear, function machines, bar models. Represent functions graphically. Forming and solving one step equations. Collecting like terms.	Integer and decimal place value. Number lines. Comparing/Ordering numbers. Range and median. Rounding to powers of 10 and 1s.f. Tenths and hundredths. Fractions, decimals and percentages for tenths and quarters. Interpret pie charts. Equivalent fractions. Converting between F.D.P.	Formal methods of addition/subtraction/multiplication/division with integers and decimals. Problems in context – perimeter, money, frequency trees. Multiplying by 10,100, 1000. Unit conversions. Areas of triangles, rectangles and parallelograms. Mean. 2-step equations.	Ordering directed numbers. Using a calculator with directed numbers. Order of operations. Representing tenths and hundredths. Adding/Subtracting fractions with a common or different denominators. Mixed Questions.	Drawing and Measuring lines and angles. Understanding parallel and perpendicular. Types of triangle, quadrilaterals and other polygons. SSS, SAS, ASA triangles. Pie charts. Angles around a point, on a straight line, vertically opposite. Missing angles in triangles	Algebraic expressions. Set notation and Venn diagrams, probability. Prime factorisation, Powers and roots, counter examples.
YEAR 8	KNOWLEDGE	**Ratio and Scale. Multiplicative Change. Multiplying and Dividing Fractions.**	**Working in the Cartesian Plane. Collecting and Representing Data. Tables and Probability.**	**Brackets, Equations and Inequalities. Generate Sequences. Indices.**	**Fractions and Percentages. Standard Index Form. Number Sense.**	**Angles in Parallel Lines and Polygons. Area of Trapezia and Circles. Line Symmetry and Reflection.**	**The Data Handling Cycle. Measures of Location.**
	SKILLS	**Revisit** understanding representation of fractions. Ratio and its link to multiplication. Ratio notation. Simplifying ratios and solving ratio problems. Circumference of a circle. Simple direct proportion problems. Scale factors, scale diagrams and maps. Multiplying and dividing a fraction by an integer and fraction.	**Revisit** directed number, **Revisit** pie charts, **Revisit** Sets and probability. Plotting and interpreting straight line graphs, equations of parallel lines to the axes. Scatter graphs and correlations, one and two-way tables. Listing outcomes, using sample space diagrams and tables.	**Revisit** two-step equations. Multiplying out single brackets. Forming and using expressions, formulae and identities. Forming and solving equations and inequalities without brackets. Sequences with more complex rules. Writing expressions with powers.	**Revisit** understanding representation of fractions, **Revisit** directed number, **Revisit** equivalence of fractions, decimals and percentages, **Revisit** order of operations. One number as a percentage of another. Conversion between ordinary numbers and standard form. Developing mental strategies, measures, units, estimation.	**Review** Y7 angles rules, parallel lines and angles. **Revisit** geometric notation. Angles in special quadrilaterals and polygons. **Review** of shapes covered in Y7, **Revisit** constructions of geometric shapes, Area of a trapezium, area and parts of a circle, using significant figures and area of compound shapes. Line symmetry in polygons. Reflections of shapes in horizontal, vertical and diagonal lines.	**Revisit** pie charts. Collecting data, interpreting statistical diagrams and dual bar charts. Constructing and interpreting pie charts. Mean, mode, median and range. Mean for grouped data. Choosing the appropriate average. Comparing distributions.
YEAR 9	KNOWLEDGE	**Straight Line Graphs. Forming and Solving Equations. Testing Conjectures.**	**Three Dimensional Shapes. Constructions and Congruency.**	**Number. Using Percentages. Maths and Money.**	**Deduction. Rotation and Translation. Pythagoras' Theorem.**	**Enlargement and Similarity. Solving Ratio and Proportion Problems. Rates.**	**Probability. Algebraic Representations.**
	SKILLS	**Revisit** two-step equations. Interpreting straight line graphs. Finding the equation of a straight line. Compare	**Revisit** constructions of geometric shapes, **Revisit** Area of 2-D shapes. Faces, edges and vertices, names	**Revisit** fraction addition and subtraction, **Revisit** standard form, **Revisit** prime factorisation. Types of	**Revisit** angle rules, within special quadrilaterals and algebraic situations. **Revisit** line symmetry and	Enlarge shapes by a positive scale factor, including from a given point. Calculate lengths of missing sides in	**Revisit** Apply single event probability, relative frequency, expected outcomes and independent

		linear sequences and find the rule for the nth term. Forming and solving equations in context with angles, probability and area. Conjectures about odd, even and prime numbers. Is a given term in a sequence? Are these lines parallel? What would happen if..?	of prisms and non-prisms. Identifying 2D shapes, within 3D shapes. Volume and surface area of cuboids and cylinders. Volume of prisms. Nets, scale drawing, constructing perpendiculars and bisectors. Exploring congruency via construction.	number, Highest common factor, lowest common multiple. Percentage increase and decrease. Percentages over 100%. Finding percentage change. Using multipliers. Wages and taxes, bills and bank statements, interest. Unit pricing – best buys.	reflection. Identify the order of rotational symmetry, rotate shapes, translate shapes and points. Identify the hypotenuse of a right-angled triangle. Determine whether a triangle is right-angled. Calculate missing sides in right-angled triangles.	similar shapes. Direct proportion and graphs, conversion graphs, solving ratio problems. Working with compound units and compound measures. Speed, distance and time. Density.	events. Use tree diagrams. Represent inequalities. Investigate graphs of simultaneous equations. Interpret reciprocal, piece-wise and quadratic graphs.