Maths Long Term Plan

Woodlands Academy

Maths Intent:
The maths curriculum at Woodlands Academy is designed to inspire our children and enable them to gain fluency and an understanding of mathematical concepts. Our curriculum aims to develop learners who explore ideas, practise skills and apply them to real life scenarios. We aim to use practical activities to engage our pupils and develop their curiosity. Our children will acquire an appreciation and recognition of pattern, shape, space and time. Our curriculum will lay the foundations for independent living and employment, developing transferable skills that can be applied in a range of curriculum subjects and real-life contexts and that leads to a meaningful qualification. Our children will follow a broad, balanced, and progressive curriculum that offers opportunities to consolidate learning and experience rich challenges. It is based on the National Curriculum but is adapted to meet the needs of individuals and their interests. We aim to provide children with a cohesive structure of experiences that teach, reinforce, and give opportunities to apply mathematical concepts.

The Five Cs	Yellow Pathway	Green Pathway	Blue Pathway
Confidence	Children will embrace mathematical concepts with confidence; sorting and grouping objects, ordering, and sequencing events and numbers and exploring objects and spaces. Children will use a range maths language, signs and symbols to communicate ideas and findings.	Children will become comfortable with the subject, exploring objects and concepts, embracing mistakes, practising regularly, seeking understanding, and asking for help. Developing fluency will enable pupils to confidently apply knowledge to solve problems.	Children will become fluent in in the fundamentals of maths, and this will give them the confidence to apply mathematical reasoning in a range of contexts making connections across mathematical ideas to solve increasingly complex problems.
Challenge	Children will engage with open ended challenges that extend their mathematical knowledge in a variety of contexts using a range of materials and equipment. They will be open to new experiences and ideas.	Children will develop their problem-solving skills in maths through simple investigations. They will apply their learning in practical and real-life situations. Children will become resilient and independent choosing resources and methods that support and further their learning.	Children will solve problems by applying their mathematics to a variety of routine and non-routine problems with some sophistication breaking down challenges into a series of simpler steps using different mathematical ideas.
Curiosity	Children will respond to questions and discover for themselves, manipulating objects, matching numbers, colours, and shapes and expressing interest in maths concepts.	Children will be encouraged to explore and think about maths-based objects and concepts, investigating, asking questions, discovering order and pattern, and making links to the world around them.	Children will investigate mathematical concepts and ideas, asking questions and reasoning mathematically, following a line of enquiry and presenting proof.

The Five Cs	Yellow Pathway	Green Pathway	Blue Pathway
Character	Children will play alongside and with others, sharing maths toys, games, and resources. They will take opportunities to discover and learn and choose what to do and express a preference for different maths activities.	Children will apply themselves to an experiential curriculum with positivity and understand the importance of their learning in maths, asking for support and taking all opportunities to improve their skills and knowledge. Children will be encouraged to take control of their learning, knowing where they are and what they need to do next.	Children will demonstrate resilience and commitment. They will apply mathematical knowledge in other subjects. They will engage with a curriculum that ensures financial literacy and prepares them for everyday life and employment.
Creativity	Children will create patterns and build with shapes. They will experience and identify patterns in nature and in the school environment.	Children will experiment and investigate mathematical objects and concepts. Children will be encouraged to think creatively approaching a problem from different angles, devising strategies, and discovering innovative solutions.	Children will approach maths problems creatively making rich connections across mathematical ideas to develop fluency. They will develop an appreciation of the beauty and power of mathematics

Learning goals for each pathway

Number (comparison, counting, cardinality, composition)		
Yellow Pathway	Green Pathway	Blue Pathway (GCSE students only)
Compares two small groups of up to five objects, communicating when there are the same number of objects in each group. Points or touches (tags) each item, saying one number for each item. Uses some number names and number language within play and may show fascination with large numbers. Begins to recognise numerals 0 to 10. Subitises one, two and three objects (without counting). Counts to five items, recognising that the last number said represents the total counted so far (cardinal principle). Links numerals with amounts up to 5 and beyond. Explores using a range of their own marks and signs to which they ascribe mathematical meaning. Through play and exploration, is beginning to learn that numbers are made up (composed) of smaller numbers. Beginning to use understanding of number to solve practical problems in play and meaningful activities.	Read and write numbers to 1000. Order and compare numbers to 1000. Recognise place value in 3-digit numbers. Round numbers less than 1000 to the nearest 10. Round numbers less than 1000 to the nearest 100. Find 10 or 100 more or less than a given number. Recognise and use multiples of 2, 3,4,5,8,50 and 100. Add and subtract using 3-digit numbers. Multiply a two-digit whole number by a single digit number. Use and interpret all four operations in real life situations for solving problems. Use inverse operations to find missing numbers. Estimate the answer to a calculation. Recall and use multiplication facts for the 3, 4 and 8 multiplication tables. Identify or show unit fractions up to one tenth of a quantity up to 100. Work out fractions to one tenth of a number up to 100.	Read and write, compare and order positive and negative integers of any size. Calculate with numbers to 1000000 using strategies to check answers including estimation and approximation, Evaluate expressions and make substitutions in given formulae in words and symbols. **Use concept and vocabulary of prime numbers, factors, common multiples and highest common factors, lowest common multiples, prime factorisation including using product notation and the unique factorisation theorem.** **Use positive integer powers and associated real roots.** Identify and know equivalence between fractions, decimals, and percentages. Work out percentages of amounts and express one amount as a percentage of another. Calculate percentage change and original value after percentage change. Order, add, subtract, and compare amounts or quantities using proper and improper fractions and mixed numbers. **Multiply and divide with fractions.**

Beginning to recognise that each counting number is one more than the one before. Separates a group of three or four objects in different ways, beginning to recognise that the total is still the same.	Identify or show any number of thirds, quarters, fifths, or tenths of an amount. Recognise and identify equivalent fractions. Add and subtract fractions with the same denominator within one whole. Work out amounts 5, 8 or 10 times the size of a given amount.	Express one number as a fraction of another. Order, approximate, and compare decimals. Add, subtract, multiply and divide decimals to up to 3 decimal places. Understand and calculate using ratios, direct proportion, and inverse proportion. **Identify and work with fractions in ratio problems.** **Use ratio notation, including reduction to simplest form.** **Divide a given quantity into two parts in a given part: part or part: whole ratio** **Express the division of quantity into two parts as a ratio.** **Apply ratio to real contexts.** **Express a multiplicative relationship between two numbers as a ratio or fraction.** **Understand and use proportion as equality of ratios.** **Relate ratios to fractions and linear functions.** Follow the order of precedence of operators, including indices.

Geometry and Measures (shape, pattern, measures and spatial awareness)		
Yellow Pathway	Green Pathway	Blue Pathway
Responds to and uses language of position and direction. Predicts, moves, and rotates objects to fit the space or create the shape they would like (cont.) Chooses items based on their shape which are appropriate for the child's purpose. Responds to both informal language and common shape names. Shows awareness of shape similarities and differences between objects. Enjoys partitioning and combining shapes to make new shapes with 2D and 3D shapes. Attempts to create arches and enclosures when building, using trial and improvement to select blocks. Creates their own spatial patterns showing some organisation or regularity. Explores and adds to simple linear patterns of two or three repeating items, e.g. stick, leaf (AB) or stick, leaf, stone (ABC).	Appreciate the purchasing power of amounts of money. Exchange notes for an equivalent value in coins. Use decimal notation for money. Interpret a calculator display. Solve real life problems involving what to buy and how to pay. Add amounts of money and give change. Carry out investigations working with money. Solve problems involving time. Know that there are 365 days in a year and, 366 days in a leap year, 12 months in a year and 52 full weeks in a year. Use a calendar and write the date correctly. Tell the time from an analogue clock including using Roman numerals. Understand and use the 12-hour clock and 24-hour clock systems and convert from one system to the other. Convert between hours, minutes, and seconds.	Calculate amounts of money, compound interest, percentage increases, decreases and discounts including tax and simple budgeting. Use standard units of mass, length, time and money including standard compound measures using decimal quantities where appropriate. Check calculations using approximation and estimation. **Round numbers (measures) to an appropriate degree of accuracy.** Convert between metric and imperial units of length, weight and capacity using a conversion factor and a conversion graph. **Change freely between related standard units and compound units in numerical contexts.** **Use conventional terms and notations (lines, vertices, edges, planes, etc).** Calculate perimeters and areas of 2D shapes including triangles and circles and composite shapes including non-rectangular shapes

Joins in with simple patterns in sounds, objects, games, and stories dance and movement, predicting what comes next. In meaningful contexts, finds the longer or shorter, heavier, or lighter and more/less full of two items. Recalls a sequence of events in everyday life and stories.	Add up to three lengths of time given in minutes or hours. Add lengths, capacities, and weights and compare the total to another total or a requirement. Convert standard units of length, capacity and weight. Compare and order lengths, capacities and weights in different standard units. Measure the perimeter of a simple shape. Choose and appropriate measuring instrument. Read values form an appropriate scale. Read and compare temperature including with negative values. Recognise and name 3D shapes Draw lines of symmetry on shapes and pictures Recognise and draw nets of cubes and cuboids. Identify whether an angle is less or more than a right angle. Identify horizontal, vertical and parallel lines. Denote the position of a point on a grid by its coordinates or identify a point given its coordinates. Use North, South, East and West to give directions or position from a map.	(formulae given except for triangles and circles. Use formulae to find volumes and surface areas of 3D shapes including cylinders. (formulae to be given for shapes other than cylinders) Calculate actual dimensions from scale drawings and create a scale diagram given actual measurements. **Apply the properties of angles at a point, on a straight line, vertically opposite angles.** **Understand and use alternate and corresponding angles on parallel lines.** **Derive and use the sum of angles in a triangle.** **Derive and apply the properties and definitions special types of quadrilaterals and triangles.** **Identify, describe, and construct congruent and similar shapes (rotation, reflection, translation and enlargement.)** **Describe translations as 2D vectors.** **Identify and apply circle definitions and properties.** **Compare lengths, areas and volumes using ratio notation.** Use coordinates in 2D, positive and negative to specify the positions of points. Understand and use common 2D representations of 3D objects.

		Draw 3D shapes including planes and elevations. Calculate values of angles and or coordinates with 2D and 3D shapes. **Use and interpret algebraic notation.** **Substitute numerical values into formulae and expressions including scientific formulae.** **Simplify and manipulate algebraic expressions.** **Understand and use the concepts and vocabulary of expressions, equations, formulae, inequalities, terms, and factors.** **Understand and use mathematical formulae.** **Where appropriate interpret simple expressions as functions with inputs and outputs.** **Solve linear equations in one unknown algebraically.** **Find approximate solutions using a graph.** **Generate terms in a sequence**.

Statistics (sorting, probability, data, pictograms, tables, and graphs)		
Yellow Pathway	Green Pathway	Blue Pathway
Sorts objects by given criteria (shape, colour) Investigate sorting objects generating own criteria. Discovers collections of similar objects and classifies them. (cars and buses) (shells and pinecones) Expresses preferences and recognises that other people have different preferences (colours, foods). Recognise similarities and differences (height, eye colour, sock colour). Contributes data to classroom displays. Extracts data from classroom displays eg: favourite colour, zones, weather, and birthdays.	Construct and interpret bar charts with the vertical axis scaled in ones or twos. Construct and interpret pictograms where one picture represents more than one item. Extract numerical information from lists, tables, diagrams, and charts. Complete a frequency table given the original list of results. Complete a tally chart and the resulting frequency table. Compare two or more diagrams. Solve one and two step problems based on statistical information.	Calculate the median and mode of a set of quantities. Estimate the mean of a grouped frequency distribution from discrete data. Use the mean, median, mode and range to compare two set of data. Work out the probability of combined events including the use of diagrams and tables including two-way tables. Express probabilities as fractions, decimals and percentages. **Record, describe and analyse the frequency of outcomes of probability experiments using tables and frequency trees.** **Apply ideas of randomness, fairness and equally likely events to calculate expected outcomes.** **Relate relative expected frequencies to theoretical probability using the probability scale.** **Enumerate sets and combinations of sets systematically.** **Construct theoretically possibility spaces for single and combined experiments with equally likely outcomes.** Draw and interpret scatter diagrams and recognise positive and negative correlation.

		Interpret and construct tables, charts and diagrams including frequency tables, bar charts, pie charts and pictograms for categorical data, vertical line charts for ungrouped discrete numerical data and know their appropriate use. **Interpret, analyse, and compare the distributions of data sets from univariate empirical distributions through appropriate graphical representations and appropriate measures of central tendency and spread.**

Yellow Pathway Framework 2024-2025

Autumn 1 (trial)	**Number** Counting and ordering Composition **Shapes** In our environment Pattern - Autumn objects	Spring 1	**Number** Counting and ordering Composition **Measuring** Length Weight Capacity	Summer 1	**Number** Counting and ordering (Money) Composition (Money) **Measures** Time
Autumn 2	**Number** Counting and ordering Composition money **Sorting and Data**	Spring 2	**Number** Counting and ordering Composition **Shape and Pattern** 2D and 3D shape Properties of shapes Building 3D shapes Investigating 2D shapes	Summer 2	**Number** Counting and ordering Composition **Shape and Pattern** Repeating patterns Number patterns Natural patterns

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Green Pathway Framework 2024 -2025 (order may vary to ensure availability of resources to all classes)					
week	strand	week	strand	week	strand
1	Properties of number	1	Properties of Number	1	Statistics
2	Properties of number	2	Properties of Number	2	Statistics
3	The four operations	3	The four operations	3	Ratio
4	The four operations	4	The four operations	4	Ratio
5	Money	5	Measures (weight)	5	Money
6	Money	6	Measures (weight)	6	Money
7	The calendar and time	7	Ratio	7	The four operations
8	The calendar and time	8	Ratio	8	The four operations
9	The four operations	9	Geometry	9	The calendar and time
10	The four operations	10	Geometry	10	The calendar and time
11	Measures (length)	11	Measures (capacity)	11	Geometry
12	Measures (length)	12	Measures (capacity)	12	Geometry
13	Measures (length)			13	Four operations
14	The four operations				

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Blue Pathway Framework 2024-2025					
week	strand	week	strand	week	strand
1	Similarity	1	Geometry	1	Delving Into Data
2	Similarity	2	Geometry	2	Delving Into Data
3	Similarity	3	Geometry	3	Delving Into Data
4	Similarity	4	Geometry	4	Delving Into Data
5	Similarity	5	Geometry	5	Using Number
6	Similarity	6	Geometry	6	Using Number
7	Similarity	7	Proportions and Proportional Change	7	Using Number
8	Developing Algebra	8	Proportions and Proportional Change	8	Using Number
9	Developing Algebra	9	Proportions and Proportional Change	9	Using Number
10	Developing Algebra	10	Proportions and Proportional Change	10	Using Number
11	Developing Algebra	11	Proportions and Proportional Change	11	Expressions
12	Developing Algebra	12	Proportions and Proportional Change	12	Expressions
13	Developing Algebra			13	Expressions
14	Developing Algebra				