

Act justly, Love mercy, Walk humbly

QPS Vision Statement

With **JESUS** at our side,
We **ACT** with a sense of right and wrong.
We show **LOVE** by being kind to everyone.
We **WALK** through each day with modesty in all we do.

Curriculum Intent for Maths

At QPS, we aim for all of our children to be confident mathematicians who are able to quickly recall maths facts, reason about mathematical ideas and solve real-life mathematical problems. We teach a mastery approach for mathematics and follow the fundamental 'Mathematics Mastery' ideas. The Mathematics Mastery curriculum is cumulative - each school year begins with a focus on the concepts and skills that have the most connections, which are then applied and connected throughout the school year to consolidate learning. This gives pupils the opportunity to 'master maths'; by using previous learning throughout the school year, they are able to develop mathematical fluency and conceptual understanding.

Being able to represent ideas in many different ways is a crucial part of 'deep understanding' in mathematics. Using objects and pictures to represent abstract concepts and making connections between these concepts is essential to achieving mastery. We believe that using a concrete – pictorial – abstract approach in all year groups gives our children the skills to develop their conceptual understanding. We want pupils to build a deep conceptual understanding of concepts which will enable them to apply their learning in different situations.

Using the correct mathematical vocabulary and communicating ideas effectively is an important part of mastery in maths. Our curriculum is designed with language and communication at its heart. Every child at QPS is given the opportunity to develop their mathematical language skills. We expect all children to speak in full sentences, using key mathematical words and phrases.

Our mathematics curriculum allows children to explore, wonder, question and conjecture. This gives children a secure knowledge and understanding of mathematical ideas. We want children to explore possibilities and experiment with ideas, testing predictions in order to form generalisations. We aim to support our children in developing a growth mindset and support them in becoming confident mathematicians.

	Autumn 1	Autumn 2	Spring 1	Spring 2	Summer 1	Summer 2
EYFS	<p><u>Early mathematical experiences</u> Classifying, matching, comparing and ordering.</p> <p><u>Pattern and early number</u> Recognise, describe and copy patterns. Count one, two and three objects reliably.</p>	<p><u>Numbers within 6</u> Represent, count and order. One more and one fewer.</p> <p><u>Addition and Subtraction within 6</u> Combination and partitioning. Explore and represent addition and subtraction. Explore the concept of zero.</p> <p><u>Measures: Length</u> Estimate, compare and explore the weight, capacity, size and length of everyday objects. Use everyday language to talk about capacity, weight and size.</p> <p><u>Shape and Sorting</u> Explore, describe and sort 3-D shapes. Use mathematical language to describe position.</p> <p><u>Calendar and Time</u> Explore days of the weeks, seasons and time. Ordinal language when sequencing events. Measure short periods of time in simple ways.</p>	<p><u>Numbers within 10</u> Count, represent, recognise and order. One more/greater and one fewer/less.</p> <p><u>Addition and Subtraction within 10</u> Augmentation and reduction. Practise addition and subtraction including using zero.</p> <p><u>Numbers within 15</u> Explore, represent, count and order. One more and one fewer.</p>	<p><u>Grouping and Sharing</u> Explore counting in equal groups and sharing into equal groups.</p> <p><u>Numbers within 20</u> Count, represent and order. One more/greater and one fewer/less. Investigate number combinations Ordinal numbers and consolidate patterns.</p> <p><u>Double and Half</u> Understand and apply the concept of double and half.</p>	<p><u>Shape and Pattern</u> Describe and sort shapes. Use shapes to recognise, continue and create pattern.</p> <p><u>Addition and Subtraction</u> Applying the structures. Exploring commutativity. Comparing two amounts. Doubling and halving.</p> <p><u>Money</u> Recognise coin values. Explore different combinations of coins. Change from ten pence.</p>	<p><u>Measures</u> Compare and describe capacities, volumes, weights and lengths.</p> <p><u>Depth of numbers within 20</u> Explore strategies and representations. Apply knowledge of all concepts in their surrounding environment. Recognise and extend a pattern.</p> <p><u>Numbers beyond 20</u> Recognise, compare and say numbers to 50 in order. One more and one less.</p>

<p>Year 1</p>	<p>Numbers within 10 Count, read, write, identify, represent, double and half, and use comparative language. Addition and subtraction within 10 Combination and partitioning. Represent and use number bonds; read, write, interpret, represent and solve. Shapes and patterns Recognise common 2-D and 3-D shapes; describe position, direction and movement.</p>	<p>Numbers within 20 Count, read, write, identify, represent, double and half, and use comparative language. Addition and subtraction within 20 Augmentation and reduction. Represent and use number bonds; read, write, interpret and solve one-step problems.</p>	<p>Time Tell the time to the hour and half-past the hour; solve practical problems for time. Exploring calculation strategies within 20 Represent and use number bonds; use concrete and pictorial representation to solve one-step problems. Numbers to 50 Count, read, write, identify, represent in numerals and words; recognise place value.</p>	<p>Addition and subtraction within 20 Comparison and difference. Represent and use number bonds; read, write, interpret and solve one-step problems. Fractions Recognise, find and name a half and a quarter as one of two or four equal parts respectively. Measures: Length and mass Compare, describe, measure, record and solve practical problems.</p>	<p>Numbers 50 to 100 and beyond Count from a given number in 1s, 2s, 5s and 10s; represent, identify and estimate numbers; recognise place value. Addition and subtraction beyond 20 Applying strategies and structures. Represent and use number bonds; read, write, interpret and solve one-step problems. Money Recognise and value coins and notes; solve one-step addition/subtraction problems.</p>	<p>Multiplication and division Solve one-step problems using concrete and pictorial representations and arrays. Measures: Capacity and volume Compare, describe, measure, record and solve practical problems.</p>
<p>Year 2</p>	<p>Numbers within 100 Use place value and number facts to solve problems; identify, represent, compare and order numbers. Add and subtract 2-digit numbers Build addition/subtraction facts/methods to 100; understand commutativity. Addition and subtraction word problems Solve problems using concrete and pictorial representations to develop mental and written methods; recognise inverse relationships of operations.</p>	<p>Measuring length Understand appropriate units of measure (cm, m); compare and order; read scales to 100. Graphs Interpret and construct tables, tally charts, pictograms and block diagrams; ask/answer questions about totalling and comparing data. Multiplication and division by 2, 5 and 10 Calculate mathematical statements; understand commutativity; solve problems using concrete, pictorial, written and mental methods.</p>	<p>Time Tell and write the time to five minutes; compare and sequence intervals of time. Fractions Recognise, find, name and write simple fractions of objects and quantities; recognise equivalences between fractions Addition and subtraction of 2-digit numbers (regrouping and adjusting) Solve problems involving numbers, quantities and measures; estimate and check calculations.</p>	<p>Money Recognise units symbols (£, p); explore combinations of money; solve simple problems, including giving change. Faces, shapes and patterns; lines and turns Identify and describe properties of 2-D and 3-D shapes; compare and sort common shapes and objects; describe position and movement in mathematical language</p>	<p>Numbers within 1000 Use, identify and represent place value and number facts to solve problems; compare, read, write and order numbers. Measures: capacity and volume Understand appropriate units of measure; compare and order; read scales to 1000. Measures: mass Understand appropriate units of measure; compare and order; read scales to 1000.</p>	<p>Exploring calculation strategies Add/subtract numbers mentally and using formal written methods Multiplication and division by 3 and 4 Recall and use facts for the 3 and 4 times tables; calculate mathematical statements; solve problems using concrete, pictorial, written and mental methods.</p>

<p>Year 3</p>	<p><u>Number sense and exploring calculation strategies</u> Solve number and practical problems, including estimation and checking; add and subtract money to give change in pounds and pence. <u>Place Value</u> Identify, represent and estimate numbers in different contexts, recognise and use place value of 3-digit numbers in calculations. <u>Graphs</u> Interpret and present data using charts and tables. Solve one and two-step problems using presented information.</p>	<p><u>Addition and subtraction</u> Calculate mentally and using formal written methods; solve problems using number facts and place value. <u>Length and perimeter</u> Measure, compare, add/ subtract lengths; solve problems using appropriate tools and units.</p>	<p><u>Multiplication and division</u> Deepen understanding of multiplication and division and apply this to solve problems. <u>Deriving multiplication and division facts</u> Calculate mathematical statements including for 2-digit numbers by 1-digit numbers; progress from mental to formal written methods.</p>	<p><u>Time</u> Tell, record, write and compare the time, including using Roman numerals, 12hr clocks, a.m. and p.m. ; compare durations. <u>Fractions</u> Recognise, use, compare, order simple fractions; understand fractions as parts of a whole; add/subtracts fractions of same denominator.</p>	<p><u>Angles and shape</u> Identify right-angles, recognising them as quarters of a turn; identify parallel and perpendicular lines; draw/make and measure 2-D and 3-D shapes. <u>Measures</u> Measure, compare, add/ subtract and solve problems, using appropriate tools and units.</p>	<p><u>Securing multiplication and division</u> Recall and use multiplication/ division facts for 6 & 8 times table; count in multiples of 6 & 8; calculate mathematical statements. <u>Exploring calculation strategies and place value</u> Add/subtract numbers mentally; find 10, 100, 1000 more than a given number; order and compare beyond 1000; round any number to nearest 10, 100, 1000.</p>
<p>Year 4</p>	<p><u>Reasoning with 4-digit numbers</u> Solve number and practical problems with increasingly large numbers; identify, represent and estimate using different representations. <u>Addition and subtraction</u> Calculate and estimate numbers with up to 4 digits using formal written methods; solve two-step problems, deciding on appropriate methods.</p>	<p><u>Multiplication and division</u> Understand and use distributive law; use place value to calculate mentally; use formal written method to multiply two and three-digits numbers by one-digit numbers. <u>Discrete and continuous data</u> Solve, compare, calculate, interpret and present data using appropriate graphical methods; understand line graphs.</p>	<p><u>Securing multiplication facts</u> Recall multiplication facts up to 12 x 12. <u>Fractions</u> Show families of equivalent fractions; solve problems with increasingly harder fractions; add/subtract fractions totalling more than 1. <u>Time</u> Solve problems converting between units of measure, analogue and digital 12 and 24-hour clocks.</p>	<p><u>Decimals</u> Discover decimals; recognise decimal equivalents to tenths, quarters and halves; compare numbers with the same number of decimals places. <u>Area and perimeter</u> Measure and calculate perimeter of rectilinear shapes; measure, calculate and compare areas of rectangles and composite rectilinear shapes.</p>	<p><u>Solving measure and money problems</u> Convert between units of measure; estimate, compare and solve simple measure and money problems including fractions and decimals. <u>Shape and symmetry</u> Compare and classify geometric shapes and angles; identify lines of symmetry in 2-D shapes.</p>	<p><u>Position and direction</u> Describe positions and movements and plot specified points and lines on a 2-D grid. <u>Reasoning with patterns and sequences</u> Read Roman numerals and understand a brief history of the number system; recognise and use square numbers and their notation; understand negative numbers to -100. <u>3-D shape</u> Identify 3-D shapes from 2-D representations.</p>

<p>Year 5</p>	<p><u>Reasoning with large whole numbers</u> Understand, compare and solve number and practical problems to 1 000 000. <u>Integer addition and subtraction</u> Explore calculation strategies for large number problems, reasoning towards appropriate operations and methods. <u>Line graphs and timetables</u> Read and interpret information presented in tables and line graphs and solve comparison, sum and difference questions.</p>	<p><u>Multiplication and division</u> Solve problems using known facts, knowledge of factors, primes, squares and cubes and combinations of operations. <u>Perimeter and area</u> Calculate and compare the perimeter and area; estimate areas of non-rectilinear shapes.</p>	<p><u>Fractions and decimals</u> Understand and use numbers with up to 3 decimal places; read and write decimals as fractions; solve problems involving measure with all four operators. <u>Angles</u> Estimate and compare acute, obtuse and reflex angles; draw given angles, measuring in degrees; identify totals of angles at a point and on a straight line.</p>	<p><u>Fractions and percentages</u> Understand percentages and convert to fractions/decimals; add/subtracts fractions with different denominators; multiply fractions by whole numbers; solve problems with all of the above. <u>Transformations</u> Identify and describe translations and positions of shapes with appropriate language; deduce missing lengths and angles.</p>	<p><u>Converting units of measure</u> Convert between units of metric measure and understand approximate equivalences between metric and imperial units. <u>Calculating with whole numbers and decimals</u> Consolidation and application opportunities. Solve multi-step problems in contexts, using all four operations and deciding on appropriate methods.</p>	<p><u>2-D and 3-D shape</u> Distinguish between regular and irregular polygons; recognise, describe and build 3-D shapes, including making nets; illustrate and name parts of circles. <u>Volume</u> Estimate volume and capacity; recognise and use cube numbers with notation. <u>Problem solving</u> Consolidation and application opportunities</p>
<p>Year 6</p>	<p><u>Integers & Decimals</u> Read, write, order and compare numbers to ten million. Apply a range of strategies for addition and subtraction to solve multi-step problems. <u>Multiplication and division</u> Multiply larger integers and decimal numbers with up to 2 decimal places using a range of strategies, including the formal written algorithms for long and short multiplication. Divide integers by 1-digit and 2-digit numbers using a range of strategies, representing remainders appropriately.</p>	<p><u>Calculation problems</u> Apply a range of strategies to solve multi-step problems, considering the agreed order of operations. Express missing number problems algebraically and solve equations with unknown values. <u>Fractions 1</u> Deepen understanding of equivalence, in order to simplify, compare and order fractions, including those greater than one. Add and subtract fractions. <u>Missing angles and lengths</u> Compare and classify a range of geometric shapes, using angle facts to find unknown angles in triangles, quadrilaterals and regular polygons.</p>	<p><u>Coordinates and shape</u> Describe positions on a full coordinate grid, exploring negative numbers in context. Apply an understanding of the properties of shapes to find missing coordinates and translate and reflect shapes. Recognise the properties of 3-D shapes and know the properties of circles. <u>Fractions 2</u> Multiply and divide fractions. Deepen understanding of the links between fractions, multiplication and division. <u>Decimals and measures</u> Use, read, write and convert between standard units, including length, mass, volume and time. Calculate the area of shapes including parallelograms and triangles. Calculate the volume of cubes and cuboids.</p>	<p><u>Percentages and statistics</u> Recall equivalences between fractions, decimals and percentages. Solve problems involving the calculation of percentages. Interpret and construct pie and line graphs, and interpret the mean as an average. <u>Proportion problems</u> Solve problems involving unequal sharing, scale factor and the relative size of two quantities. <u>Revision</u></p>	<p><u>Revision</u></p>	<p><u>Revision</u></p>