

Northwick Park Academy Trust Maths Long Term Plan

		Autumn		Spring		Summer	
		Term 1	Term 2	Term 3	Term 4	Term 5	Term 6
Year 1		Count up to at least 10. Read numerals to at least 10. Write numerals to at least 10. Identify and represent numbers to at least 10 using objects, pictorial representations including using the number line. Order and compare numbers to at least 10 using the language of equal to, more than, less than (fewer), most, least. Identify one more and one less than a given number. Identify and use ordinal numbers to 10. Use the language of position and direction.	Compose numbers to 10 from 2 parts, and partition numbers to 10 into parts Read, write and interpret equations containing addition (+), subtraction (-) and equals (=) symbols, and relative additive expressions and equations to real-life contexts. Develop fluency in addition and subtraction facts within 10. Add and subtract one-digit numbers, including zero Demonstrate and understanding of the commutative law (e.g. $3 + 2 = 5$, therefore $2 + 3 = 5$) Demonstrate an understanding of inverse relationships involving addition and subtraction (e.g. if $3 + 2 = 5$, then $5 - 2 = 3$) Recognise and name common 2-D and 3-D shapes presented in different orientations, and know that rectangles, triangles, cuboids and pyramids are not always similar to one another. Compose 2D shapes and 3D shapes from smaller shapes to match and example, including manipulating shapes to place them in particular orientations.	Count up to at least 20. Read numerals to at least 20. Write numerals to at least 20. Identify and represent numbers to at least 20 using objects, pictorial representations including using the number line. Identify one more and one less than a given number. Reason about the location of numbers to 20 within the linear number system, including comparing using $<$ $>$ and $=$. Compare, describe and solves practical problems for lengths and heights e.g. short/long, longer/shorter, tall/short, double/half Compare, describe and solves practical problems for mass/weight e.g. heavy/light, heavier than, lighter than Compare, describe and solves practical problems for capacity and volume e.g. full/empty, more than, less than, half, half full, quarter Measure and begin to record the following: lengths and heights, mass/weight, capacity and volume	Represent and use number bonds and related subtraction facts within 20 Add and subtract one-digit and two-digit numbers to 20, including zero Solve one-step problems that involve addition and subtraction, using concrete objects and pictorial representations, and missing number problems such as $7 = \quad - 9$. Recognise and know the value of different denominations of coins and notes Recognise, find and name a half as one of two equal parts of an object, shape or quantity. Recognise, find and name a quarter as one of four equal parts of an object, shape or quantity.	Count forwards and backwards in multiples of 2, 5 and 10 up to 10 multiples, beginning with any multiple, and count forwards and backwards through the odd numbers. Recognise odd and even numbers Solve one-step problems involving multiplication and division, by calculating the answer using concrete objects, pictorial representations and arrays with the support of the teacher. Sequence events in chronological order using language e.g. before and after, next, first, today, yesterday, tomorrow, morning, afternoon and evening. Recognise and use language relating to dates, involving days of the week, weeks, months and years. Tell the time to the hour and half past the hour and draw the hands on a clock face to show these times.	Count within 100, forwards and backwards, starting with any number. Read and write numbers to 100 in numerals. Read and write numbers from 1 to 20 in numerals and words. Partition and combine numbers using apparatus if required e.g. partition 76 into tens and ones; combine 6 tens and 4 ones Describe position, direction and movement, including whole, half, quarter and three quarter turns. Compare, describe and solves practical problems for time e.g. quicker, slower, earlier, later Measure and begin to record time (hours, minutes, seconds) Recognise and name common 3-D shapes presented in different orientations, and know that rectangles, triangles, cuboids and pyramids are not always similar to one another. Compose 3D shapes from smaller shapes to match and example, including manipulating shapes to place them in particular orientations.

Northwick Park Academy Trust Maths Long Term Plan

Year 2	<p>Read and write numbers to at least 100 in numerals and words. Recognise the place value of each digit in two-digit numbers and compose and decompose two-digit numbers using standard and non-standard partitioning. Compare and order numbers from 0 up to 100; use <, > and = signs. Use place value and number facts to solve problems. Reason about the location of any two-digit number in the linear number system, including identifying the previous and next multiple of 10. Secure fluency in addition and subtraction facts within 10, through continued practice. Add and subtract across 10. Show that addition of two numbers can be done in any order (commutative) and subtraction of one number from another cannot. Add and subtract numbers using concrete objects, pictorial representations, and mentally, including three one-digit numbers (U +/- U +/- U). Recall doubles and halves to 20 e.g. knowing that double 2 is 4 and double 5 is 10 and half of 18 is 9.</p> <p>Name some common 2D and 3D shapes from a group of shapes or from a picture of the shapes and describe some of their properties (e.g. triangles, rectangles, squares, circles, cuboids, cubes, pyramids and spheres).</p>	<p>Count in steps of 2, 3 and 5 from 0. Recall and use multiplication and division facts for the 2, 5 and 10 multiplication tables, including recognising odd and even numbers.</p> <p>Recall and use addition and subtraction facts to 20 fluently. Solve problems with addition and subtraction using concrete objects and pictorial representations. Add and subtract within 100 by applying related one-digit addition and subtraction facts; add and subtract only ones or only tens to/from a two-digit number.</p> <p>Recognise and use symbols for pounds (£) and pence (p); combine amounts to make a particular value. Find different combinations of coins that equal the same amounts of money. Solve simple problems in a practical context involving addition and subtraction of money of the same unit, including giving change.</p>	<p>Recognise repeated addition contexts, representing them with multiplication equations and calculating the product, within the 2, 5 and 10 multiplication tables. Relate grouping where the number of groups is unknown to multiplication equations with a missing factor, and to division equations (quotitive division). Show that multiplication of two numbers can be done in any order (commutative) and division of one number by another cannot. Solve problems involving multiplication and division, using materials, arrays, repeated addition, mental methods, and multiplication and division facts, including problems in contexts.</p> <p>Recognise, find, name and write fractions $\frac{1}{3}$, $\frac{1}{4}$, $\frac{2}{4}$ and $\frac{3}{4}$ of a length, shape, set of objects or quantity and demonstrate understanding that all parts of the whole must be equal.</p> <p>Write simple fractions for example $\frac{1}{2}$ of 6 = 3 and recognise the equivalence of $\frac{2}{4}$ and $\frac{1}{2}$.</p>	<p>Count in steps of 2, 3, and 5 from 0, and in tens from any number.</p> <p>Add and subtract within one hundred by applying one-digit addition and subtraction facts: add and subtract any two-digit numbers. Recognise the subtraction structure of 'difference' and answer questions of the form, "How many more ...?" Recognise and use the inverse relationship between addition and subtraction and use this to check calculations and solve missing number problems.</p> <p>Compare and sequence intervals of time. Tell and write the time to five minutes, including quarter past/to the hour and draw the hands on a clock face to show these times. Know the number of minutes in an hour and the number of hours in a day.</p> <p>Order and arrange combinations of mathematical objects in patterns and sequences.</p>	<p>Interpret and construct simple pictograms, tally charts, block diagrams and simple tables. Ask and answer simple questions by counting the number of objects in each category and sorting the categories by quantity. Ask and answer questions about totalling and comparing categorical data.</p> <p>Choose and use appropriate standard units to estimate and measure length/height in any direction (m/cm); mass (kg/g); temperature ($^{\circ}$C); capacity (litres/ml) to the nearest appropriate unit, using rulers, scales, thermometers and measuring vessels. Compare and order lengths, mass, volume/capacity and record the results using >, < and =. Read scales in divisions of ones, twos, fives and tens. Read scales where not all numbers on the scale are given and estimate points in between.</p>	<p>Recall and use addition and subtraction facts to 20 fluently, and derive and use related facts up to 100. Solve problems with addition and subtraction using concrete objects and pictorial representations, including those involving numbers, quantities and measures.</p> <p>Use precise language to describe the properties of 2D and 3D shapes, and compare shapes by reasoning about similarities and differences in properties.</p> <p>Use mathematical vocabulary to describe position, direction and movement, including movement in a straight line and distinguishing between rotation as a turn and in terms of right angles for quarter, half and three-quarter turns (clockwise and anticlockwise).</p>
--------	-------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------	-----------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------	---------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------	-------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------	-------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------	--------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------

Northwick Park Academy Trust Maths Long Term Plan

Year 3	<p><i>Recall and use multiplication and division facts for the 2, 5 and 10 multiplication tables.</i></p> <p>Read and write numbers to at least 1000 in numerals and words. Know that 10 tens are equivalent to 1 hundred, and that 100 is 10 times the size of 10; apply this to identify and work out how many 10's there are in other three digit multiples of 10.</p> <p>Recognise the place value of each digit in three-digit numbers, and compose and decompose three-digit numbers using standard and non-standard partitioning.</p> <p>Reason about the location of any three-digit number in the linear number system, including identifying the previous and next multiple of 100 and 10.</p> <p>Find 10 or 100 more or less than a given number</p> <p>Compare and order numbers up to 1000</p> <p>Solve number problems and practical problems involving these ideas</p> <p>Add and subtract numbers mentally, including: a three-digit number and ones, a three-digit number and tens, a three-digit number and hundreds.</p> <p>Secure fluency in addition and subtraction facts that bridge 10 through continued practice.</p>	<p>Recall and use multiplication and division facts for the 3 multiplication tables.</p> <p>Calculate compliments to 100. Add and subtract up to 3 digits using columnar methods. Manipulate the additive relationship: understand the inverse relationship between addition and subtraction and how both relate to the part-part-whole structure. Understand and use the commutative property of addition, and understand the related property for subtraction. Estimate the answer to a calculation and use inverse operations to check</p> <p>Solve problems, including missing number problems, using number facts, place value, and more complex addition and subtraction.</p> <p>Add and subtract amounts of money to give change, using both £ and p in practical contexts</p> <p>Recognise right angles as a property of 2D and 3D shapes or a description of a turn, and identify right angles in 2D shapes presented in different orientations.</p> <p>Identify right angles, identify whether angles are greater than or less than a right angle</p> <p>Recognise that two right angles make a half turn, three make a three quarters of a turn and four a complete turn</p>	<p>Count from 0 in multiples of 4, 8, 50 and 100</p> <p>Recall and use multiplication and division facts for the 3 and 4 multiplication tables.</p> <p>Write and calculate mathematical statements for multiplication and division using the multiplication tables that they know, including for two-digit numbers times one-digit numbers, using mental methods.</p> <p>Apply known multiplication and division facts to solve contextual problems with different structures including quotitive and partitive division.</p> <p>Divide 100 into 2,4,5 and 10 equal parts, and read scales/numbers lines marked in multiples of 100 with 2, 4, 5 and 10 equal parts.</p> <p>Measure, compare, add and subtract lengths (m/cm/mm); mass (kg/g); volume/capacity (l/ml)</p> <p>Measure the perimeter of simple 2-D shapes</p> <p><i>Recap on Fractions from Year 2 – Recognise, find, name and write fractions $1/3$, $1/4$, $2/4$ and $3/4$ of a length, shape, set of objects or quantity and demonstrate understanding that all parts of the whole must be equal</i></p>	<p>Recall multiplication facts and corresponding division facts in the 10, 5, 2, 4 and 8 multiplication tables, and recognise products in these multiplication tables as multiples of the corresponding number.</p> <p>Count up and down in tenths; recognise that tenths arise from dividing an object into 10 equal parts and in dividing one-digit numbers or quantities by 10</p> <p>Interpret and write proper fractions to represent 1 or several parts of a whole that is divided into equal parts.</p> <p>Find unit fractions of quantities using known division facts (Multiplication tables fluency)</p> <p>Reason about the location of any fraction within 1 in the linear number system.</p> <p>Recognise and show, using diagrams, equivalent fractions with small denominators</p> <p>Add and subtract fractions with the same denominator, within 1.</p> <p>Solve fraction problems</p>	<p>Calculate mathematical statements for multiplication and division using the multiplication tables that they know, including for two-digit numbers times one-digit numbers, using formal written methods</p> <p>Tell and write the time from an analogue clock, including using Roman numerals from I to XII, and 12-hour and 24-hour clocks</p> <p>Estimate and read time with increasing accuracy to the nearest minute; record and compare time in terms of seconds, minutes and hours; use vocabulary such as o'clock, a.m./p.m., morning, afternoon, noon and midnight</p> <p>Know the number of seconds in a minute and the number of days in each month, year and leap year</p> <p>Compare durations of events [for example to calculate the time taken by particular events or tasks].</p>	<p>Apply place value knowledge to known additive and multiplicative number facts (scaling facts by 10)</p> <p>Draw polygons by joining marked points and identify parallel and perpendicular sides.</p> <p>Make 3-D shapes using modelling materials; recognise 3-D shapes in different orientations and describe them</p> <p>Interpret and present data using bar charts, pictograms and tables</p> <p>Solve one-step and two-step questions [for example, 'How many more?' and 'How many fewer?'] using information presented in scaled bar charts and pictograms and tables.</p>
--------	------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------	-----------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------	-----------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------	---------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------	------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------	-------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------

Northwick Park Academy Trust Maths Long Term Plan

Year 4	<p><i>Recall and use multiplication and division facts for the 2, 3, 4, 5, 8 and 10 multiplication tables.</i></p> <p>Recognise the place value of each digit in four-digit numbers, and compose and decompose four-digit numbers using standard and non-standard partitioning. Know that 10 hundreds are equivalent to 1 thousand and that 1000 is 10 times the size of 100, apply this to identify and work out how many 100's there are in other four digit multiples of 100. Find 1000 more or less than a given number</p> <p>Reason about any four-digit number in the linear number system, including identifying the previous and next multiple of 1000 and 10, and rounding to the nearest of each.</p> <p>Order and compare numbers beyond 1000</p> <p>Solve number problems and practical problems involve all of the above and with increasingly large positive numbers</p> <p>Read Roman numerals to 100 (I to C) and know that over time, the numeral system changed to include the concept of zero and place value.</p> <p>Count backwards through zero to include negative numbers</p> <p>Add and subtract numbers with up to 4 digits using the formal written methods of columnar addition and subtraction where appropriate.</p>	<p><i>Recall and use multiplication and division facts for the 6 and 9 multiplication tables.</i></p> <p>Count in multiples of 6, 7, 9, 25 and 1000</p> <p>Read, write and convert time between analogue and digital 12- and 24-hour clocks</p> <p>Solve problems involving converting from hours to minutes; minutes to seconds; years to months; weeks to days.</p> <p>Identify regular and irregular polygons, including equilateral triangles and squares, as those in which the side lengths are equal and the angles are equal.</p> <p>Identify acute and obtuse angles and compare and order angles up to two right angles by size.</p> <p>Identify line symmetry in 2-D shapes presented in different orientations. Reflect shapes in a line of symmetry and complete a symmetrical figure or pattern with respect to a specified line of symmetry.</p>	<p><i>Recall and use multiplication and division facts for the 7 and 11 multiplication tables.</i></p> <p>Use place value, known and derived facts to multiply and divide mentally, including: multiplying by 0 and 1; dividing by 1; multiplying together three numbers</p> <p>Manipulate multiplication and division equations and understand and apply the commutative property of multiplication.</p> <p>Solve division problems, with two digit dividends and one digit divisors, that involve remainders, and interpret remainders appropriately according to the context</p> <p>Multiply and divide whole numbers by 10 and 100 (keeping to whole number quotients) understand this as equivalent to making a number 10 or 100 times the size.</p> <p>Apply place-value knowledge to know additive and multiplicative number facts (scaling facts by 100)</p> <p>Multiply two-digit and three-digit numbers by a one-digit number using formal written layout</p>	<p><i>Recall and use multiplication and division facts for the 12 multiplication table</i></p> <p>Recognise and show, using diagrams, families of common equivalent fractions</p> <p>Solve problems involving increasingly harder fractions to calculate quantities, and fractions to divide quantities, including non-unit fractions where the answer is a whole number</p> <p>Add and subtract fractions with the same denominator</p> <p>Add and subtract improper and mixed fractions with the same denominator, including bridging whole numbers.</p> <p>Reason about the location of mixed numbers in the linear number system.</p> <p>Convert mixed numbers to improper fractions and vice versa.</p> <p>Solve simple measure and money problems involving fractions and decimals to two decimal places</p> <p>Find the perimeter of regular and irregular polygons.</p> <p>Find the area of rectilinear shapes by counting squares</p>	<p>Recall multiplication and division facts up to 12×12, and recognise products in multiplication tables as multiples of a corresponding number.</p> <p>Count up and down in hundredths; recognise that hundredths arise when dividing an object by one hundred and dividing tenths by ten. Recognise and write decimal equivalents of any number of tenths or hundredths</p> <p>Find the effect of dividing a one- or two-digit number by 10 and 100, identifying the value of the digits in the answer as ones, tenths and hundredths.</p> <p>Recognise and write decimal equivalents to $\frac{1}{4}$, $\frac{1}{2}$ and $\frac{3}{4}$</p> <p>Round decimals with one decimal place to the nearest whole number</p> <p>Compare numbers with the same number of decimal places up to two decimal places</p> <p>Solve simple measure and money problems involving decimals to two decimal places</p> <p>Convert between different units of measure for length and capacity.</p> <p>Estimate, compare and calculate different measures.</p>	<p>Understand and apply the distributive property of multiplication.</p> <p>Interpret and present discrete and continuous data using appropriate graphical methods, including bar charts and time graphs.</p> <p>Solve comparison, sum and difference problems using information presented in bar charts, pictograms, tables and other graphs</p> <p>Describe positions on a 2-D grid as coordinates in the first quadrant</p> <p>Draw polygons specified by coordinates in the first quadrant and translate within the first quadrant.</p> <p>Convert between different units of measure for weight</p> <p>Estimate, compare and calculate different measures, including money in pounds and pence</p>
---------------	-----------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------	-----------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------	--------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------	------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------	--------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------	---------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------

Northwick Park Academy Trust Maths Long Term Plan

	<p>Estimate and use inverse operations to check answers to a calculation</p> <p>Solve addition and subtraction two-step problems in contexts, deciding which operations and methods to use and why</p>					
--	--------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------	--	--	--	--	--

Northwick Park Academy Trust Maths Long Term Plan

Year 5	<p>Read, write, order and compare numbers to at least 1 000 000 and determine the value of each digit Count forwards or backwards in steps of powers of 10 for any given number up to 1 000 000 Interpret negative numbers in context, count forwards and backwards with positive and negative whole numbers, including through zero Round any number up to 1 000 000 to the nearest 10, 100, 1000, 10 000 and 100 000 Solve number problems and practical problems that involve all of the above</p> <p>Add and subtract whole numbers with more than 4 digits, including using formal written methods (columnar addition and subtraction) Add and subtract numbers mentally with increasingly large numbers Use rounding to check answers to calculations and determine, in the context of a problem, levels of accuracy Solve addition and subtraction multi-step problems in contexts, deciding which operations and methods to use and why.</p>	<p>Secure fluency in multiplication tables and corresponding division facts through continued practise. Multiply and divide numbers mentally drawing upon known facts Multiply and divide numbers by 10 and 100; understand this as equivalent to making a number 10 or 100 times the size or one tenth or 1 hundredth the size. Find factors and multiples of positive whole numbers, including common factors and common multiples, and express a given number as a product of 2 or 3 factors. Know and use the vocabulary of prime numbers, prime factors and composite (nonprime) numbers Establish whether a number up to 100 is prime and recall prime numbers up to 19 Recognise and use square numbers, and the notation for them Recognise and use cubed numbers, and the notation for them Solve problems involving multiplication and division including using their knowledge of factors and multiples, squares and cubes Multiply any whole number with up to 4 digits by any one-digit number using a formal written method. Divide a number with a to 4 digits by a one-digit number using a formal written method, and interpret remainders appropriately for the context.</p>	<p>Read Roman numerals to 1000 (M) and recognise years written in Roman numerals</p> <p>Find non-unit fractions of quantities. Find equivalent fractions and understand that they have the same value and the same position in the linear system. Compare and order fractions whose denominators are all multiples of the same number Recognise mixed numbers and improper fractions and convert from one form to the other and write mathematical statements > 1 as a mixed number [for example, e.g. $2/5 + 4/5 = 6/5 = 1 \frac{1}{5}$] Add and subtract fractions with the same denominator and denominators that are multiples of the same number Multiply proper fractions and mixed numbers by whole numbers, supported by materials and diagrams</p> <p>Divide 1 into 2, 4, 5 and 10 equal parts, and read scales/number lines marked in multiples of 1000 with 2, 4, 5 and 10 equal parts.</p> <p>Convert between different units of metric measure including using common decimals and fractions. Understand and use approximate equivalences between metric units and common imperial units such as inches, pounds and pints</p>	<p>Know that 10 tenths are equivalent to 1 one, and that 1 is 10 times the size of 0.1. Know that 100 hundredths are equivalent to 1 one and that 1 is 100 times the size of 0.01. Know that 10 hundredths are equivalent to 1 tenth and that 0.1 is 10 times the size of 0.01. Reason the place value of each digit in the numbers with up to 2 decimal places, and compose and decompose numbers with up to 2 decimal places using standard and non-standard partitioning. Reason about the location of any number with up to 2 decimal places in the linear number system including identifying the previous and next multiple of 1 and 0.1 and rounding to the nearest of each. Read, write, order and compare numbers with up to three decimal places Solve problems involving number up to three decimal places Read and write decimal numbers as fractions [for example, $0.71 = 71/100$] Recall decimal fraction equivalents for $\frac{1}{2}$, $\frac{1}{4}$, $\frac{1}{5}$, and $\frac{1}{10}$ and for multiples of these proper fractions. Recognise and use thousandths and relate them to tenths, hundredths and decimal equivalents Recognise the per cent symbol (%) and understand that per cent relates to the 'number of parts per hundred' and write percentages as a fraction with denominator 100, and as a decimal</p>	<p><i>Multiply numbers up to 4 digits by a one or two-digit number using a formal written method, including long multiplication for two-digit numbers</i></p> <p><i>Solve problems involving addition, subtraction, multiplication and division and a combination of these, including understanding the meaning of the equals sign</i></p> <p>Identify, describe and represent the position of a shape following a reflection or translation, using the appropriate language, and know that the shape has not changed.</p> <p>Solve problems involving converting between units of time</p>	<p>Apply place value knowledge to know additive and multiplicative number facts (scaling facts by 1 tenth or 1 hundredth)</p> <p><i>Solve problems involving multiplication and division, including scaling by simple fractions and problems involving simple rates</i></p> <p>Use all four operations to solve problems involving measure e.g. length, mass, volume, money using decimal notation, including scaling</p> <p>Use the properties of rectangles to deduce related facts and find missing lengths and angles Distinguish between regular and irregular polygons based on reasoning about equal sides and angles Identify 3-D shapes, including cubes and other cuboids, from 2-D representations</p> <p>Estimate volume e.g. using 1cm cubed blocks to build cuboids (including cubes) and capacity e.g. using water</p> <p>Solve comparison, sum and difference problems using information presented in a line graph Complete, read and interpret information in tables, including timetables.</p>
--------	----------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------	----------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------	-----------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------	--------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------	---------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------	--------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------

Northwick Park Academy Trust Maths Long Term Plan

		<p>Compare angles, estimate and measure angles in degrees and draw angles of given sizes.</p> <p>Identify: angles at a point and one whole turn (total 360) angles at a point on a straight line and 1/2 a turn (total 180) other multiples of 90</p>		<p>Measure and calculate the perimeter of composite rectilinear shapes in centimetres and metres</p> <p>Compare areas and calculate the area of rectangles (including squares) using standard units.</p>		
--	--	---------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------	--	----------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------	--	--

Northwick Park Academy Trust Maths Long Term Plan

Year 6	<p>Recognise the value of each digit in numbers up to 10 million, including decimal fractions, and compose and decompose numbers up to 10 million using standard and non-standard partitioning.</p> <p>Reason about the location of any number up to 10 million including decimal fractions, in the linear number system, and round numbers, as appropriate, including in context. (read, write, order and round)</p> <p>Use negative numbers in context, and calculate intervals across zero</p> <p>Solve number and practical problems that involve all of the above</p> <p>Identify the value of each digit in numbers given to three decimal places.</p> <p>Understand the relationship between powers of 10 from 1 hundredth to 1 million and use this to make a given number 10, 100, 1000, 1 tenth or 1 hundredth or 1 thousandth times the size (Multiply and divide whole numbers and decimals by 10, 100 or 1000)</p> <p>Perform mental calculations, including with mixed operations and large numbers</p> <p>Solve addition and subtraction multi-step problems in contexts, deciding which operations and methods to use and why</p> <p>Multiply multi-digit numbers up to 4 digits by a two-digit whole number using the formal written method of long multiplication</p> <p>Divide numbers up to 4 digits by a two-digit number using the formal written method of short division</p>	<p>Divide numbers up to 4 digits by a two-digit whole number using the formal written method of long division, and interpret remainders as whole number remainders, fractions, or by rounding, as appropriate for the context</p> <p>Identify common factors, common multiples and prime numbers</p> <p>Recognise when fractions can be simplified, and use common factors to simplify fractions.</p> <p>Express fractions in a common denominator and use this to compare fractions that are similar in value.</p> <p>Compare fractions with different denominators, including fractions greater than 1, using reasoning, and choose between reasoning and common denominator as a comparison strategy.</p> <p>Add and subtract fractions with different denominators and mixed numbers, using the concept of equivalent fractions</p> <p>Multiply simple pairs of proper fractions, writing the answer in its simplest form</p> <p>Divide proper fractions by whole numbers</p> <p>Associate a fraction with division and calculate decimal fraction equivalents</p> <p>Recall and use equivalences between simple fractions, decimals and percentages, including in different contexts</p> <p>Solve problems involving the calculation of percentages [for example, of measures, and such as 15% of 360] and the use of percentages for comparison</p>	<p>Multiply one-digit numbers with up to two decimal places by whole numbers</p> <p>Use written division methods in cases where the answer has up to two decimal places</p> <p>Solve problems which require answers to be rounded to specified degrees of accuracy</p> <p>Solve problems involving addition, subtraction, multiplication and division</p> <p>Use estimation to check answers to calculations and determine, in the context of a problem, an appropriate degree of accuracy.</p> <p>Use simple formulae</p> <p>Generate and describe linear number sequences</p> <p>Express missing number problems algebraically</p> <p>Enumerate possibilities of combinations of two variables.</p> <p>Solve problems with 2 unknowns.</p> <p>Solve problems involving the calculation and conversion of units of measure, using decimal notation up to three decimal places where appropriate</p> <p>Use, read, write and convert between standard units, converting measurements of length, mass, volume and time from a smaller unit of measure to a larger unit, and vice versa, using decimal notation to up to three decimal places</p> <p>Convert between miles and kilometres</p> <p>Recognise that shapes with the same areas can have different perimeters and vice versa</p>	<p>Understand that 2 numbers can be related additively or multiplicatively, and quantify additive and multiplicative relationships (Multiplicative relationships restricted to multiplication by a whole number)</p> <p>Use a given additive or multiplicative calculation to derive or complete a related calculation, using arithmetic properties, inverse relationships, and place value understanding.</p> <p>Solve problems involving the relative sizes of two quantities where missing values can be found by using integer multiplication and division facts</p> <p>Solve problems involving similar shapes where the scale factor is known or can be found</p> <p>Solve problems involving unequal sharing and grouping using knowledge of fractions and multiples.</p> <p>Solve problems involving ratio relationships.</p> <p>Interpret and construct pie charts and line graphs and use these to solve problems ♣ calculate and interpret the mean as an average.</p> <p>Illustrate and name parts of circles, including radius, diameter and circumference and know that the diameter is twice the</p> <p>Draw, compose and decompose shapes according to given properties, including dimensions, angles and are, and solve related problems.</p>	<p>Any remaining time before SATs will be used to consolidate key learning.</p>	<p>POST SATS</p> <p>Maths projects</p> <p>Preparation for KS3</p>
---------------	------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------	-----------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------	-------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------	----------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------	----------------------------------------------------------------------------------------	--------------------------------------------------------------------------

Northwick Park Academy Trust Maths Long Term Plan

	<p>where appropriate, interpreting remainders according to the context</p> <p>Use their knowledge of the order of operations to carry out calculations involving the four operations</p> <p>Describe positions on the full coordinate grid (all four quadrants) Draw and translate simple shapes on the coordinate plane, and reflect them in the axes.</p>	<p>Compare and classify geometric shapes based on their properties and sizes and find unknown angles in any triangles, quadrilaterals, and regular polygons Recognise angles where they meet at a point, are on a straight line, or are vertically opposite, and find missing angles.</p>	<p>Recognise when it is possible to use formulae for area and volume of shapes</p> <p>Calculate the area of parallelograms and triangles</p> <p>Calculate, estimate and compare volume of cubes and cuboids using standard units, including cubic centimetres (cm³) and cubic metres (m³), and extending to other units [for example, mm³ and km³].</p>	<p>Recognise, describe and build simple 3-D shapes, including making nets</p>		
--	-------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------	-------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------	-----------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------	-------------------------------------------------------------------------------	--	--