SCHOOL CURRICULUM: ANNUAL PLANNER FOR MATHEMATICS – Y6

AOL	REF	STATEMENTS The children will be taught to	LEARNING OBJECTIVES To be able	1	2	★
Number - number & place value	1	read, write, order and compare numbers up to 10 000 000 and determine the value of each digit	to read numbers to 10 000 000	✔		
			to write numbers to 10 000 000	✔		
			to read numbers as words to 10 000 000 and match to numerals	✔		
			to determine the value of each digit in an eight-digit number	✔		
			to compare 2 eight-digit numbers using < and >	✔		
			to order 4 eight-digit numbers	✔		
	2	round any whole number to a required degree of accuracy	to round any number up to 10 000 000 to the nearest 10, 100, 1000, 10 000 ,100 000 and 1 000 000			
	3	use negative numbers in context, and calculate intervals across zero	to recognise where negative numbers are used in real life situations	✔	✔	✔
			to calculate the difference between a single-digit negative number and a single-digit positive number	✔	✔	✔
			to calculate the difference between a two-digit negative number and a two-digit positive number (-20 to +20)		✔	
			to calculate the difference between any two-digit negative number and any two-digit positive number		✔	
			to calculate the difference between any three-digit negative number and any three-digit positive number		✔	
	4	solve number and practical problems that involve all of the above.	to order numbers up to 10 000 000 to solve number problems	✔		
			to order numbers up to 10 000 000 to solve real-life problems	✔		✔
			to compare numbers up to 10 000 000 to solve number problems	✔		
			to compare numbers up to 10 000 000 to solve real-life problems	✔		✔
			to round any whole number up to 10 000 000 to solve number problems	✔		
			to round any whole number up to 10 000 000 to solve real-life problems	✔		✔
			to calculate the difference between a negative and a positive number to solve number problems		✔	
			to calculate the difference between a negative and a positive number to solve real-life problems		✔	✔

AOL=Area of Learning   ★=addressed as part of daily x10 mins 'mental essentials' sessions   ✦=addressed in other parts of the curriculum
Y6 Unit progression 1-2-15-11-4-12 5-8-16-6-13-9 3-17-7-14-10-18

AOL	REF	STATEMENTS The children will be taught to	LEARNING OBJECTIVES To be able	3	4	5	6	★
Number - addition, subtraction, multiplication and division	5	multiply multi-digit numbers up to 4 digits by a two-digit whole number using the formal written method of long multiplication	to multiply a three-digit number by a two-digit number using the compact method for long multiplication (stage 8)	✔				
			to multiply a four-digit number by a two-digit number using the compact method for long multiplication (stage 8)	✔				
	6	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	to divide a three-digit number by a two-digit number using the long division method with no remainders (stage 8)		✔			
			to divide a three-digit number by a two-digit number using the long division method with remainders (stage 8)		✔			
			to interpret the remainder in a division calculation, rounding up or down depending on the context (stage 8)		✔			
	7	divide numbers up to 4 digits by a two-digit number using the formal written method of short division where appropriate, interpreting remainders according to the context	to divide a four-digit number by a single-digit number using short division and write the remainder as a fraction (stage 8)			✔		
			to divide a four-digit number by a single-digit number using short division and write the remainder as a decimal (stage 8)			✔		
			to interpret the remainder in a division calculation, rounding up or down depending on the context (stage 8)			✔		
	8	perform mental calculations, including with mixed operations and large numbers	to add and subtract up to five-digit numbers mentally				✔	✔
			to use knowledge of related times table to calculate related decimal and multiples of 10 number facts				✔	✔
	9	identify common factors, common multiples and prime numbers	to identify common factors of a pair of numbers					✔
			to identify the common factors of three numbers (e.g. to find common denominators)					✔

AOL=Area of Learning   ★=addressed as part of daily x10 mins 'mental essentials' sessions   ◆=addressed in other parts of the curriculum

Y6 Unit progression 1-2-15-11-4-12 5-8-16-6-13-9 3-17-7-14-10-18

SCHOOL CURRICULUM: ANNUAL PLANNER FOR MATHEMATICS – Y6

PNC PROGRAMME OF STUDY			SCHOOL PROGRESSION	SCHOOL UNITS				
AOL	REF	STATEMENTS The children will be taught to	LEARNING OBJECTIVES To be able	3	4	5	6	★
Number – addition, subtraction, multiplication and division	10	use their knowledge of the order of operations to carry out calculations involving the four operations	to understand that operations in brackets must be performed first in any calculations		✔			✔
			to know the acronym BODMAS and what it stands for		✔			✔
			to know that multiplication and division calculation questions must be carried out before addition and subtraction ones		✔			✔
	11	solve addition and subtraction multi-step problems in contexts, deciding which operations and methods to use and why	solve problems related to the order of the calculations e.g. 2 + 1 x 3 = (15 + 5) ÷ ?		✔			✔
	12	solve problems involving addition, subtraction, multiplication and division	to solve multi-step problems involving addition and subtraction using formal written methods	✔				
			to solve multi-step problems involving addition, subtraction, multiplication and division using formal written methods	✔	✔	✔	✔	
	13	use estimation to check answers to calculations and determine, in the context of a problem, an appropriate degree of accuracy.	to consider whether the answer to a problem is likely	✔	✔	✔	✔	
			to round to an appropriate number to estimate the answer to a calculation	✔	✔	✔	✔	✔
			to round to an appropriate number to check whether an answer to a word problem is likely	✔	✔	✔	✔	

AOL=Area of Learning   ★=addressed as part of daily x10 mins 'mental essentials' sessions   ❖=addressed in other parts of the curriculum
Y6 Unit progression 1-2-15-11-4-12 5-8-16-6-13-9 3-17-7-14-10-18

SCHOOL CURRICULUM: ANNUAL PLANNER FOR MATHEMATICS – Y6

AOL	REF	STATEMENTS The children will be taught to	LEARNING OBJECTIVES To be able	7	8	9	10	★
Number - fractions (including decimals and percentages)	14	use common factors to simplify fractions; use common multiples to express fractions in the same denomination	to list the factors of the numerator and the denominator of a fraction	✔				
			to identify the common factors of the numerator and the denominator of a fraction	✔				
			to simplify a fraction by dividing by its highest common factor	✔				✔
			to find the common denominator for two fractions	✔				✔
			to convert two fractions so that they have a common denominator	✔				
	15	compare and order fractions, including fractions > 1	to compare two fractions by converting them to have a common denominator	✔				
			to order four fractions by converting them to have a common denominator	✔			✔	
	16	add and subtract fractions with different denominators and mixed numbers, using the concept of equivalent fractions	to convert two fractions so that they have the same denominator	✔			✔	
			to add two or more fractions and express the answer as a mixed number	✔				
			to subtract two fractions and express the answer as a mixed number	✔				
	17	multiply simple pairs of proper fractions, writing the answer in its simplest form [for example, $\frac{1}{4} \times \frac{1}{2} = \frac{1}{8}$]	to multiply two simple fractions	✔				
			to use knowledge of simplification to express the answer in its simplest form	✔				✔
	18	divide proper fractions by whole numbers [for example, $\frac{1}{3} \div 2 = \frac{1}{6}$]	to divide proper fractions by whole numbers	✔			✔	
	19	associate a fraction with division and calculate decimal fraction equivalents [for example, 0.375] for a simple fraction [for example, $\frac{3}{8}$]	to use fraction, decimal and percentage equivalences to calculate unknown, but related, fraction, decimal and percentage facts	✔	✔			✔

AOL=Area of Learning   ★=addressed as part of daily x10 mins 'mental essentials' sessions   ✦=addressed in other parts of the curriculum

Y6 Unit progression 1-2-15-11-4-12 5-8-16-6-13-9 3-17-7-14-10-18

SCHOOL CURRICULUM: ANNUAL PLANNER FOR MATHEMATICS – Y6

AOL	REF	STATEMENTS The children will be taught to	LEARNING OBJECTIVES To be able	7	8	9	10	★
Number - fractions (including decimals and percentages)	20	identify the value of each digit in numbers given to three decimal places and multiply and divide numbers by 10, 100 and 1000 giving answers up to three decimal places	to know the value of each digit in a number to one decimal place		✔			✔
			to know the value of each digit in a number to two decimal places		✔			✔
			to know the value of each digit in a number to three decimal places		✔			✔
			to multiply or divide a whole number, or decimal, by 10 by moving the digits one place to the left or right and giving the answer to three decimal places		✔			✔
			to multiply or divide a whole number, or decimal, by 100 by moving the digits two places to the left or right and giving the answer to three decimal places		✔			✔
			to multiply or divide a whole number, or decimal, by 1000 by moving the digits three places to the left or right and giving the answer to three decimal places		✔			✔
	21	multiply one-digit numbers with up to two decimal places by whole numbers	to use times tables knowledge to multiply numbers with one decimal place by a one digit whole number		✔			✔
			to multiply numbers with two decimal places by a one digit whole number		✔			
			to multiply decimals as measures and money by a single digit whole number		✔			
			to multiply numbers with two decimal places by a two digit whole number		✔			
	22	use written division methods in cases where the answer has up to two decimal places	to extend written methods of short division to give an answer with up to two decimal places		✔			
	23	solve problems which require answers to be rounded to specified degrees of accuracy	to solve problems which require answers to be rounded to specified degrees of accuracy e.g. Find 10% of £9.99		✔		✔	
	24	recall and use equivalences between simple fractions, decimals and percentages, including in different contexts.	to understand that fraction problems can be solved through the use of decimals and percentages and vice versa		✔	✔	✔	

AOL=Area of Learning   ★=addressed as part of daily x10 mins 'mental essentials' sessions   ✥=addressed in other parts of the curriculum
Y6 Unit progression 1-2-15-11-4-12 5-8-16-6-13-9 3-17-7-14-10-18

AOL	REF	STATEMENTS The children will be taught to	LEARNING OBJECTIVES To be able	7	8	9	10	★
PNC PROGRAMME OF STUDY			SCHOOL PROGRESSION	SCHOOL UNITS				
Ratio and proportion	25	solve problems involving the relative sizes of two quantities where missing values can be found by using integer multiplication and division facts	to understand ratio as a comparison of one or amount with another			✔		
			to scale up or down simple quantities using a given ratio			✔		
			to recognise equivalent ratios and reduce to their lowest terms			✔		
			to complete a ratio table to solve a ratio problem			✔	✔	
			to create a ratio table to solve a ratio problem			✔	✔	
			to scale down and then up to solve a ratio problem e.g. 4 sandwiches use 6 bananas, how many bananas for 14 sandwiches?			✔	✔	
	26	solve problems involving the calculation of percentages [for example, of measures, and such as 15% of 360] and the use of percentages for comparison	to solve problems involving calculating percentages of measures			✔	✔	
			to solve problems involving calculating percentages of 360° to create pie charts				✔	✔
	27	solve problems involving similar shapes where the scale factor is known or can be found	to understand that ratio is used in scale drawings			✔		
			to use a simple ratio of 1:2 to redraw a given shape			✔		✔
	28	solve problems involving unequal sharing and grouping using knowledge of fractions and multiples.	to solve problems involving unequal quantities for ratio e.g. for every egg you need 3 bananas or 3/5 of the class are boys			✔	✔	

AOL=Area of Learning   ★=addressed as part of daily x10 mins 'mental essentials' sessions   ❖=addressed in other parts of the curriculum
Y6 Unit progression 1-2-15-11-4-12 5-8-16-6-13-9 3-17-7-14-10-18

AOL	REF	STATEMENTS The children will be taught to	LEARNING OBJECTIVES To be able	11	12	★
Algebra	29	use simple formulae	to understand that letters can be used to represent numbers in mathematical situations	✔		
			to solve a simple algebra calculation e.g. a + b	✔		✔
	30	generate and describe linear number sequences	to be able to describe a number sequence	✔		
			to be able to describe a number sequence algebraically	✔		
	31	express missing number problems algebraically	to relate algebra to missing number calculations	✔		
			to rewrite missing number calculations algebraically	✔	✔	✔
	32	find pairs of numbers that satisfy an equation with two unknowns	to find a single number that satisfies an equation with one unknown e.g. y + 2 = 5	✔	✔	✔
			to find a pair of numbers that satisfies an equation with two unknowns e.g. x + y = 5	✔	✔	✔
	33	enumerate possibilities of combinations of two variables.	to list all possible combinations of numbers that satisfy an equation		✔	
			to list all possible combinations of numbers that satisfy more than one equation		✔	

Column group headers: PNC PROGRAMME OF STUDY | SCHOOL PROGRESSION | SCHOOL UNITS

AOL=Area of Learning   ★=addressed as part of daily x10 mins 'mental essentials' sessions   ❖=addressed in other parts of the curriculum
Y6 Unit progression 1-2-15-11-4-12 5-8-16-6-13-9 3-17-7-14-10-18

AOL	REF	STATEMENTS The children will be taught to	LEARNING OBJECTIVES To be able	13	14	15	★
Measurement	34	solve problems involving the calculation and conversion of units of measure, using decimal notation up to three decimal places where appropriate	to solve problems involving the conversion between metric units of measure with answers up to three decimal places	✔	✔	✔	✔
			to solve problems involving the conversion between metric and imperial units of measure with answers up to three decimal places, using a conversion graph where appropriate	✔	✔	✔	
	35	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	to convert between metric units of length by multiplying or dividing by 10, 100, 1000 giving the answer to up to three decimal places	✔			
			to convert between metric units of mass by multiplying or dividing by 10, 100, 1000 giving the answer to up to three decimal places		✔		
			to convert between metric units of volume by multiplying or dividing by 10, 100, 1000 giving the answer to up to three decimal places			✔	
			to convert time between days and weeks by multiplying and dividing by 7		✔		✔
			to convert time between minutes and hours by multiplying and dividing by 60		✔		✔
			to convert time between hours and days by multiplying and dividing by 24			✔	✔
	36	convert between miles and kilometres	to read a conversion graph in order to convert between miles and kilometres	✔			
			to interpret a conversion graph in order to answer questions involving miles and kilometres	✔			
			to draw a conversion graph in order to convert between miles and kilometres	✔			
	37	recognise that shapes with the same areas can have different perimeters and vice versa	to understand that shapes with the same areas can have different perimeters and vice versa	✔			
			to explain, using examples, how shapes with the same areas can have different perimeters and vice versa	✔			
	38	recognise when it is possible to use formulae for area and volume of shapes	to identify 2-D shapes where it is possible to use the formulae to find the area	✔			✔
			to identify 3-D shapes where it is possible to use the formulae to find the volume		✔		✔
	39	calculate the area of parallelograms and triangles	to know the formula for finding the area of a triangle (½ base x height)	✔		✔	✔
			to know the formula for finding the area of a parallelogram (base x height)	✔		✔	✔
			to use the correct formula to calculate the area of a triangle or parallelogram	✔		✔	✔

AOL=Area of Learning   ★=addressed as part of daily x10 mins 'mental essentials' sessions   ✜=addressed in other parts of the curriculum
Y6 Unit progression 1-2-15-11-4-12 5-8-16-6-13-9 3-17-7-14-10-18

PNC PROGRAMME OF STUDY			SCHOOL PROGRESSION	SCHOOL UNITS			
AOL	REF	STATEMENTS The children will be taught to	LEARNING OBJECTIVES To be able	13	14	15	★
Measurement	40	calculate, estimate and compare volume of cubes and cuboids using standard units, including cubic centimetres (cm^3) and cubic metres (m^3), and extending to other units [for example, mm^3 and km^3].	to know that volume is measured in cm^3, m^3 etc to know the algebraic formulae for calculating volume (l x w x d) to estimate the volume of cubes and cuboids using standard units of measure to compare the volume of different shaped cuboids using standard units of measure		✔ ✔ ✔ ✔		

AOL=Area of Learning   ★=addressed as part of daily x10 mins 'mental essentials' sessions   ✠=addressed in other parts of the curriculum
Y6 Unit progression 1-2-15-11-4-12 5-8-16-6-13-9 3-17-7-14-10-18

SCHOOL CURRICULUM: ANNUAL PLANNER FOR MATHEMATICS – Y6

AOL	REF	STATEMENTS The children will be taught to	LEARNING OBJECTIVES To be able	16	17	★
Geometry – properties of shape	41	draw 2-D shapes using given dimensions and angles	to work systematically to draw two lines of a given length, with a given angle, using a protractor and a ruler	✔		
			to work systematically to draw a triangle, from a given base, using a protractor and a ruler	✔		
			to work systematically to draw a triangle using a protractor and a ruler	✔		
			to work systematically to draw a 2-D shape using a protractor and a ruler	✔		
	42	recognise, describe and build simple 3-D shapes, including making nets	to make nets of a cube	✔		
			to explore different ways of making nets of cubes	✔		
			to make nets of 3-D shapes (cube, cuboid, pyramids and prisms)	✔		
			to explain why some nets will not make 3-D shapes	✔		
			to make non-regular 3-D shapes out of cubes, using a diagram	✔		
	43	compare and classify geometric shapes based on their properties and sizes and find unknown angles in any triangles, quadrilaterals, and regular polygons	to use the mathematical terms congruent and similar correctly	✔		
			to identify whether two shapes are congruent, similar or neither	✔		
			to know the total of the internal angles in a triangle	✔		✔
			to identify the missing angle within a triangle	✔		✔
			to know the total of the internal angles in a quadrilateral	✔		
			to identify the missing angle within a quadrilateral	✔		
			to know the total of the internal angles in a regular polygon	✔		
			to identify the missing angle within a regular polygon	✔		
	44	illustrate and name parts of circles, including radius, diameter and circumference and know that the diameter is twice the radius	to identify the circumference of a circle		✔	
			to identify the diameter of a circle		✔	
			to identify the radius of a circle		✔	
			to know the algebraic formulae to find diameter is $d = 2 \times r$		✔	
	45	recognise angles where they meet at a point, are on a straight line, or are vertically opposite, and find missing angles.	to know that angles that are vertically opposite are equal	✔	✔	✔
			to identify angles on a straight line, vertically opposite and angles about a point within a collection of joined shapes	✔	✔	✔
			to use angle sum facts to make deductions about missing angles within a collection of joined shapes	✔	✔	

AOL=Area of Learning   ★=addressed as part of daily x10 mins 'mental essentials' sessions   ◆=addressed in other parts of the curriculum
Y6 Unit progression 1-2-15-11-4-12 5-8-16-6-13-9 3-17-7-14-10-18

SCHOOL CURRICULUM: ANNUAL PLANNER FOR MATHEMATICS – Y6

PNC PROGRAMME OF STUDY				SCHOOL PROGRESSION	SCHOOL UNITS		
AOL	REF	STATEMENTS The children will be taught to		LEARNING OBJECTIVES To be able	16	17	★
Geometry – Position and direction	46	describe positions on the full coordinate grid (all four quadrants)		to draw and label a pair of axis in all four quadrants with equal scaling to describe positions in all four quadrants to draw points in all four quadrants		✔ ✔ ✔	 ✔ ✔
	47	draw and translate simple shapes on the coordinate plane, and reflect them in the axes.		to draw shapes from given co-ordinates in all four quadrants (rectangle, square, parallelogram & rhombus) to predict a missing point on a given shape using their knowledge of the properties of shape in all four quadrants to translate a shape in two directions on a four quadrant grid to use algebra to help translate a shape in two directions on a four quadrant grid e.g. translate vertex (a , b) to (a-2 , b+3)		✔ ✔ ✔ ✔	

PNC PROGRAMME OF STUDY			SCHOOL PROGRESSION	SCHOOL UNITS	
AOL	REF	STATEMENTS The children will be taught to	LEARNING OBJECTIVES To be able	18	✛
Statistics	48	interpret and construct pie charts and line graphs and use these to solve problems	to understand a pie chart compares amounts	✔	
			to read a pie chart divided into ½, ¼ and 1/8	✔	✔
			to interpret and answer questions about a pie chart divided into ½, ¼ and 1/8	✔	
			to compare two pie charts divided into ½, ¼ and 1/8 showing different numbers of children	✔	
			to read a pie chart divided into percentages and more complex fractions	✔	
			to interpret and answer questions about a pie chart divided into percentages and more complex fractions	✔	
			to label both axis of a line graph with even divisions		✔
			to label the axis of a line graph with an appropriate scale		✔
			to be able to plot and join data points on a line graph		✔
			to be able to draw a line graph from one piece of information e.g. £1 = $1.7		✔
	49	calculate and interpret the mean as an average.	to know how to calculate the mean of a group of data	✔	✔
			to know when it is appropriate to calculate the mean of a group of data		✔
			to calculate the mean of a group of data	✔	✔
			to interpret and answer questions about the mean average of a group of data	✔	✔

AOL=Area of Learning   ★=addressed as part of daily x10 mins 'mental essentials' sessions   ✛=addressed in other parts of the curriculum
Y6 Unit progression 1-2-15-11-4-12 5-8-16-6-13-9 3-17-7-14-10-18