Year 5/6: Maths Long Term Plan

THE PYTHON HILL ACADEMY

LABOR OMNIA VINCIT

Our Ambition: To be the highest performing MAT in the country
Our Mission: To improve the communities we serve for the better

Vision:

Challenging educational orthodoxies so that every child makes good progress in all subjects;
all teachers are committed to personal improvement and fulfil their responsibilities;
all children receive an inspiring curriculum;
all academies strive to be outstanding.

Mathematics Long Term Planning Support: Year 5 & 6

	Week 1	Week 2	Week 3	Week 4	Week 5	Week 6	Week 7
Autumn 1	**Place Value** 2 weeks		**Number: Addition, Subtraction, Multiplication & Division** 2 weeks				
	• 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. • Round any number up to 1,000,000 to the nearest 10, 100, 1000, 10,000 and 100,000. • Interpret negative numbers in context, count forwards and backwards with positive and negative whole numbers including through zero. • Solve number problems and practical problems that involve all of the above. • Read Roman numerals to 1000 (M) and recognise years written in Roman numerals.		• Add and subtract numbers mentally with increasingly large numbers. • Add and subtract whole numbers with more than 4 digits, including using formal written methods (columnar addition and subtraction). • 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. • Identify multiples and factors, including finding all factor pairs of a number, and common factors of two numbers. • Multiply and divide numbers mentally drawing upon known facts. • Multiply and divide whole numbers by 10, 100 and 1000. • Recognise and use square numbers and cube numbers and the notation for squared (²) and cubed (³) Solve problems involving multiplication and division including using their knowledge of factors and multiples, squares and cubes. • Know and use the vocabulary of prime numbers, prime factors and composite (non-prime) numbers. • Establish whether a number up to 100 is prime and recall prime numbers up to 19. • Divide numbers up to 4 digits by a one digit number using the formal written method of short division and interpret remainders appropriately for the context. • Solve problems involving addition and subtraction, multiplication and division and a combination of these, including understanding the use of the equals sign.				
	• Read, write, order and compare numbers up to 10,000,000 and determine the value of each digit. • Round any whole number to a required degree of accuracy. • Use negative numbers in context, and calculate intervals across zero. • Solve number and practical problems that involve all of the above.		• Solve addition and subtraction multi step problems in contexts, deciding which operations and methods to use and why. • Multiply multi-digit number up to 4 digits by a 2-digit number using the formal written method of long multiplication. • Divide numbers up to 4 digits by a 2-digit number using the formal written method of short division, interpreting remainders according to the context. • Divide numbers up to 4 digits by a 2-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. • Perform mental calculations, including with mixed operations and large numbers. • Identify common factors, common multiples and prime numbers. • Use their knowledge of the order of operations to carry out calculations involving the four operations. • Solve problems involving addition, subtraction, multiplication and division. • Use estimation to check answers to calculations and determine in the context of a problem, an appropriate degree of accuracy. • Solve addition and subtraction multi-step problems in contexts, deciding which operations to use and why.				

	Week 1	Week 2	Week 3	Week 4	Week 5	Week 6
Autumn 2	**Number: Fractions** 4 weeks				**Consolidation & assessment week** 1 week	**Number: Fractions** 1 week
	• Identify, name and write equivalent fractions of a given fraction, represented visually including tenths and hundredths. • Compare and order fractions whose denominators are 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 2/5 + 4/5 = 6/5 = 1 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. • Read and write decimal numbers as fractions [for example 0.71 = 71/100]. • Solve problems involving multiplication and division, including scaling by simple fractions and problems involving simple rates.					
	• Use common factors to simplify fractions. • Use common multiples to express fractions in the same denomination. • Compare and order fractions, including fractions > 1. • Generate and describe linear number sequences (with fractions). • Add and subtract fractions with different denominations and mixed numbers, using the concept of equivalent fractions. • Multiply simple pairs of proper fractions, writing the answer in its simplest form [for example 1/4 x 1/2 = 1/8]. • Divide proper fractions by whole numbers [for example 1/3 ÷ 2 = 1/6]. • Associate a fraction with division and calculate decimal fraction equivalents [for example, 0.375] for a simple fraction [for example 3/8].					

	Week 1	Week 2	Week 3	Week 4	Week 5	Week 6
Spring 1	**Fractions OR Ratio** 2 weeks		**Number: Decimals & Percentages** 2 weeks			**Decimals OR algebra** 2 weeks
	See NC statements from Autumn 2		• Read, write, order and compare numbers with up to three decimal places. • Recognise and use thousandths and relate them to tenths, hundredths and decimal equivalents. • Round decimals with two decimal places to the nearest whole number and to one decimal place. • Solve problems involving number up to three decimal places. • Recognise the percent symbol (%) and understand that per cent relates to 'number of parts per hundred', and write percentages as a fraction with denominator 100, and as a decimal. • Recall and use equivalences between simple fractions, decimals and percentages, including in different contexts. • Solve problems which require knowing percentage and decimal equivalents of 1/2, 1/4, 1/5, 2/5, 4/5 and those fractions with a denominator of a multiple of 10 or 25		
	• Solve problems involving the relative sizes of two quantities where missing values can be found by using integer multiplication and division facts. • Solve problems involving similar shapes where the scale factor is known or can be found. • Solve problems involving unequal sharing and grouping using knowledge of fractions and multiples.		• Identify the value of each digit in numbers given to 3 decimal places. • Multiply numbers by 10, 100 and 1,000 giving answers up to 3 decimal places. • Multiply one-digit numbers with up to 2 decimal places by whole numbers. • Use written division methods in cases where the answer has up to 2 decimal places. • Solve problems which require answers to be rounded to specified degrees of accuracy. • Solve problems involving the calculation of percentages [for example, of measures and such as 15% of 360] and the use of percentages for comparison. • Recall and use equivalences between simple fractions, decimals and percentages including in different contexts.			• Use simple formulae. • Generate and describe linear number sequences. • Express missing number problems algebraically. • Find pairs of numbers that satisfy an equation with two unknowns. • Enumerate possibilities of combinations of two variables.

	Week 1	Week 2	Week 3	Week 4	Week 5	Week 6
Spring 2	**Decimals OR Algebra** 1 weeks	**Measurement: Perimeter, Area & Volume** 2 weeks			**Assessment & Statistics week** 1 week	**Measurement: converting units** 1 week
	• Solve problems involving number up to three decimal places. • Multiply and divide whole numbers and those involving decimals by 10, 100 and 1000. • Use all four operations to solve problems involving measure [for example, length, mass, volume, money] using decimal notation, including scaling. – **use a context rather than converting**	• Measure and calculate the perimeter of composite rectilinear shapes in cm and m. • Calculate and compare the area of rectangles (including squares), and including using standard units, cm^2, m^2 estimate the area of irregular shapes. • Estimate volume [for example using 1cm3 blocks to build cuboids (including cubes)] and capacity [for example, using water]. • Use all four operations to solve problems involving measure.			• Solve comparison, sum and difference problems using information presented in a line graph. • Complete, read and interpret information in tables including timetables.	• Convert between different units of metric measure [for example, km and m; cm and m; cm and mm; g and kg; l and ml]. • Understand and use approximate equivalences between metric units and common imperial units such as inches, pounds and pints. • Solve problems involving converting between units of time.
	See NC statements from Spring 1	• Recognise that shapes with the same areas can have different perimeters and vice versa. • Recognise when it is possible to use formulae for area and volume of shapes. • Calculate the area of parallelograms and triangles. • Calculate, estimate and compare volume of cubes and cuboids using standard units, including cm^3, m^3 and extending to other units (mm^3, km^3).			• Illustrate and name parts of circles, including radius, diameter and circumference and know that the diameter is twice the radius. • Interpret and construct pie charts and line graphs and use these to solve problems. • Calculate the mean as an average.	• Solve problems involving the calculation and conversion of units of measure, using decimal notation up to three decimal places where appropriate. • 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 3dp. • Convert between miles and kilometres.

	Week 1	Week 2	Week 3	Week 4	Week 5
Summer 1	**Geometry: Properties of Shape** 2 weeks		**Geometry: Position and direction** 1/2 weeks		**Time OR Investigations**
	• Identify 3D shapes, including cubes and other cuboids, from 2D representations. • Distinguish between regular and irregular polygons based on reasoning about equal sides and angles. • Use the properties of rectangles to deduce related facts and find missing lengths and angles. • Know angles are measured in degrees: estimate and compare acute, obtuse and reflex angles. • Draw given angles, and measure them in degrees (°) • 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°		• 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.		• Solve problems that involve converting between units of time • Use all four operations to solve problems involving time.
	• Draw 2-D shapes using given dimensions and angles. • 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. • Recognise, describe and build simple 3D shapes (including making nets).		• Illustrate and name parts of circles, including radius, diameter and circumference and know that the diameter is twice the radius. • Interpret and construct pie charts and line graphs and use these to solve problems. • Calculate the mean as an average.	**SATs week**	

	Week 1	Week 2	Week 3	Week 4	Week 5	Week 6
Summer 2	4 Operations Consolidation OR Investigations		Fractions, decimals & Percentages Consolidation OR Investigations		Assessment week OR Investigations	Investigations