Year 6 learning overview

Autumn	1	2	3	4	5	6	7	8	9	10	11	12
White Rose	Number Place Value Step 1 Numbers to 1,000,000 Step 2 Numbers to 10,000,000 Step 3 Read and write numbers to 10,000,000 Step 4 Powers of 10 Step 5 Number line to 10,000,000 Step 6 Compare and order any integers Step 7 Round any integer Step 8 Negative numbers			Number: Addition, Subtraction, Multiplication and Division Step 1 Add and subtract integers Step 2 Common factors Step 3 Common multiples Step 4 Rules of divisibility Step 5 Primes to 100 Step 6 Square and cube numbers Step 7 Multiply up to a 4-digit number by a 2-digit number Step 8 Solve problems with multiplication Step 9 Short division Step 10 Division using factors Step 11 Introduction to long division Step 12 Long division with remainders Step 13 Solve problems with division Step 14 Solve multi-step problems Step 15 Order of operations Step 16 Mental calculations and estimation				Number Fractions A Step 1 Equivalent fractions and simplifying Step 2 Equivalent fractions on a number line Step 3 Compare and order (denominator) Step 4 Compare and order (numerator) Step 5 Add and subtract simple fractions Step 6 Add and subtract any two fractions Step 7 Add mixed numbers Step 8 Subtract mixed numbers		Number Fractions B Step 1 Multiply fractions by integers Step 2 Multiply fractions by fractions Step 3 Divide a fraction by an integer Step 4 Divide any fraction by an integer Step 5 Mixed questions with fractions Step 6 Fraction of an amount Step 7 Fraction of an amount – find the whole		Measurements: Converting Units Step 1 Metric measures Step 2 Convert metric measures Step 3 Calculate with metric measures Step 4 Miles and kilometres Step 5 Imperial measures
Links to National Curriculum	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 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. 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. 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.				Use common factors to simplify fractions; use common multiples to express fractions in the same denomination. Compare and order fractions, including fractions >1. Add and subtract fractions with different denominators and mixed numbers, using the concept of equivalent fractions. Multiply simple pairs of proper fractions, writing the answer in its simplest form (e.g. 1/4 × 1/2 = 1/8). Divide proper fractions by whole numbers (e.g. 1/3 ÷ 2 = 1/6). Associate a fraction with division to calculate decimal fraction equivalents (e.g. 0.375) for a simple fraction (e.g. 3/8). Identify the value of each digit to three decimal places and multiply and divide numbers by 10, 100 and 1000 where the answers are up to three decimal places. Multiply one digit numbers with up to two decimal places by whole numbers. Use written division methods in cases where the answer has up to two decimal places. Solve problems which require answers to be rounded to specified degrees of accuracy. Recall and use equivalences between simple fractions, decimals and percentages, including in different contexts.				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 3 d.p. Convert between miles and kilometres

Spring	1	2	3	4	5	6		7	8	9	10	11	12
White Rose	<u>Number Ratio</u> Step 1 Add or multiply? Step 2 Use ratio language Step 3 Introduction to the ratio symbol Step 4 Ratio and fractions Step 5 Scale drawing Step 6 Use scale factors Step 7 Similar shapes Step 8 Ratio problems Step 9 Proportion problems Step 10 Recipes		<u>Number Algebra</u> Step 1 1-step function machines Step 2 2-step function machines Step 3 Form expressions Step 4 Substitution Step 5 Formulae Step 6 Form equations Step 7 Solve 1-step equations Step 8 Solve 2-step equations		<u>Number Decimals</u> Step 1 Place value within 1 Step 2 Place value – integers and decimals Step 3 Round decimals Step 4 Add and subtract decimals Step 5 Multiply by 10, 100 and 1,000 Step 6 Divide by 10, 100 and 1,000 Step 7 Multiply decimals by integers Step 8 Divide decimals by integers		<u>Number Fractions, Decimals and Percentages</u> Step 1 Decimal and fraction equivalents Step 2 Fractions as division Step 3 Understand percentages Step 4 Fractions to percentages Step 5 Equivalent fractions, decimals and percentages Step 6 Order fractions, decimals and percentages Step 7 Percentage of an amount – one step Step 8 Percentage of an amount – multi-step Small steps Step 9 Percentages – missing values		<u>Geometry Area, Perimeter and Volume</u> Step 1 Shapes – same area Step 2 Area and perimeter Step 3 Area of a triangle – counting squares Step 4 Area of a right-angled triangle Step 5 Area of any triangle Step 6 Area of a parallelogram Step 7 Volume – counting cubes Step 8 Volume of a cuboid		<u>Statistics</u> Step 1 Line graphs Step 2 Dual bar charts Step 3 Read and interpret pie charts Step 4 Pie charts with percentages Step 5 Draw pie charts Step 6 The mean	
Links to National Curriculum	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.		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.		Identify the value of each digit in numbers given to 3 decimal places and 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. Identify the value of each digit in numbers given to 3 decimal places and 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.		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 cm3, m3 and extending to other units (mm3, km3).		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.	

Summer	1	2	3	4	5	6		7	8	9	10	11	12
White Rose	**Geometry Shape** Step 1 Measure and classify angles Step 2 Calculate angles Step 3 Vertically opposite angles Step 4 Angles in a triangle Step 5 Angles in a triangle – special cases Step 6 Angles in a triangle – missing angles Step 7 Angles in a quadrilateral Step 8 Angles in polygons Step 9 Circles Step 10 Draw shapes accurately Step 11 Nets of 3-D shapes			**Geometry Position and Direction** Step 1 The first quadrant Step 2 Read and plot points in four quadrants Step 3 Solve problems with coordinates Step 4 Translations Step 5 Reflections	SATS	**Consolidation and problem solving of maths skills** The Bakery Focusing on: Ratio Efficient strategies for calculation, unit conversions, comparisons, percentages and other purchase deals Profit/Loss Packaging Common real-life problems encountered when cooking and baking exploring areas such time, mass, algebra, fractions and ration and proportion.			**Consolidation and problem solving of maths skills** Tours Focusing on: Comparing the climates of different countries Unit conversions (km and miles) as well as time, multiplicative reasoning and fractions Solving comparison problems using the four operations with money		**Consolidation and problem solving of maths skills** The Future Introduces some important vocabulary linked to jobs and pay e.g. salary, gross pay, income tax and take-home pay Calculating a wage from an hourly rate and shifts. Budgeting monthly take-home pay to ensure all expenditure is covered Explores concepts related to housing, including deposits, mortgages and repayments		**Number Investigation** Square Numbers Binary Numbers Multiples of 11 (Classroom Secrets)
Links to National Curriculum	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.			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.									