



Domain	Autumn
NPV Addition and subtraction	<p>Solve number and practical problems involving:</p> <ul style="list-style-type: none"> • Read, write, order and compare numbers to at least 10,000,000 and determine the value of each digit. • Identify, represent and estimate numbers using different representations including number-lines • Round any whole number to a required degree of accuracy (represent on a number line) • Add and subtract whole numbers with more than 4 digits. Represent solutions appropriately using informal and formal written methods. • Perform mental calculations, including with mixed operations and large numbers • Use estimation to check answers to calculations and determine, in the context of a problem, levels of accuracy • Solve addition and subtraction multi-step problems in context, deciding which operations and methods to use and why. • Recognise the same areas can have different perimeters and vice versa • Use knowledge of the order of operations to carry out calculations involving the four operations
Multiplication and division	<ul style="list-style-type: none"> • Represent multiplication and division facts as grid arrays, link to rectangular areas, identifying factors as whole number side lengths of rectangles. • Y5: Calculate and compare the area of rectangles, including squares, and including using standard units (cm² and m²) and estimate the area of irregular shapes. • Y5: Identify multiples and factors, including finding all factor pairs of a number and common factors of two numbers. Know and use the vocabulary of prime numbers. • Use place value knowledge to multiply and divide whole numbers and those involving decimals by 10 , 100 and 1000. • Understand division as grouping, moving on from sharing, to make efficient use of multiplication facts when dividing. • Represent division calculations (not the solution) as number-lines and bar-models to support conceptual understanding before solving. • Multiply multi-digit numbers up to 4-digits by a 2-digit whole number using a formal written method of long multiplication (see NC appendix for methods). • Divide numbers up to 4-digits by a 2-digit whole number using a formal written method of long division, and interpret remainders as a whole number, fraction or by rounding as appropriate for the context. • Use estimation to check answers to calculations and determine, in the context of a problem, levels of accuracy
Fractions	<ul style="list-style-type: none"> • Y4: Add and subtract fractions with the same denominator • Y4: Recognise and show using diagrams, families of common equivalent fractions. • Y4: 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 • Y5: Compare and order, add and subtract, fractions whose denominators are all multiples of the same number. • Y5: Identify, name and write equivalent fractions of a given fraction, represented visually, including tenths and hundredths

	<ul style="list-style-type: none"> • Y5: Recognise mixed numbers and improper fractions and convert from one form to the other. Write mathematical statements >1 as a mixed number (e.g. $2/5 + 4/5 = 6/5 = 1 \frac{1}{5}$) • Y5: Multiply proper fractions and mixed numbers by whole numbers, supported by materials and diagrams • Use common factors to simplify fractions; use common multiples to express fractions in the same denomination. • Recall and use equivalences between simple fractions, decimals and percentages, including in different contexts. • Add and subtract fractions with different denominators and mixed numbers, using the concept of equivalent fractions • Compare and order fractions, including fractions larger than one.
<p>NPV/ measurement (Mass and capacity)</p> <p>All four operations</p>	<ul style="list-style-type: none"> • Estimate capacity using standard units to measure liquid (l/ml) and read scales graded in different sized steps (e.g. 0,10,20,30.... 0 , 25 , 50 , 75.... 0, 20, 40,60...) • Know that distributivity can be expressed as $a(b + c) = ab + ac$. (e.g. $13 \times 8 = 8(10 + 3)$) • Understand the terms factor, multiple and prime, square and cube numbers and use them to construct equivalence statements (for example, $4 \times 35 = 2 \times 2 \times 35$; $3 \times 270 = 3 \times 3 \times 9 \times 10 = 92 \times 10$). • Round any whole number to a required degree of accuracy • 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. • Solve problems involving the calculation and conversion units of measure (g/kg ; ml/l) using decimal notation up to three decimal places .Link to place value understanding of scaling up and down by 1000 (\times / \div) • Use, read, write and convert between standard units, converting measurements of mass and capacity from a smaller unit of measure to a larger unit and vice versa. • Understand and use equivalences between metric units and common imperial units such as pounds and pints. • Solve problems involving the calculation and conversion units of measure (g/kg ; ml/l) using decimal notation up to three decimal places. Link to place value understanding of scaling up and down by 1000 (\times / \div) • Use knowledge of the order of operations to carry out calculations involving the four operations • Identify common factors, common multiples and prime numbers. • Express missing number problems algebraically • Find pairs of numbers that satisfy pairs of numbers involving two unknowns • Solve problems involving addition, subtraction, multiplication and division, deciding which operations and methods to use and why • Use estimation to check answers to calculations and determine, in the context of a problem, an appropriate degree of accuracy.
<p>Percentages Measurement (Time + timetables)</p> <p>Geometry (shape and angle/ parts of the circle)</p>	<ul style="list-style-type: none"> • Use place value knowledge to find 10% and 1% of any number. • Know that 50% is the same as finding one half, 25% is the same as finding one quarter and 75% is the same as finding three quarters of a quantity (or shape) • Y5: Solve problems involving converting between units of time • Y5: Know angles are measured in degrees: estimate and compare acute, obtuse and reflex angles • Y5: identify angles at a point and one whole turn (total 3600) • Y5: identify angles at a point on a straight line and $\frac{1}{2}$ a turn

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| | <ul style="list-style-type: none">• Solve problems involving the calculation of percentages, eg 15% of 360 and the use of percentages for comparison.• Complete, read and interpret information in tables, including timetables• Solve problems involving durations of time and fractions of time e.g. $\frac{2}{3}$ of a day in hours• Illustrate and name parts of circles, including radius, diameter and circumference and know that the diameter is twice the radius.• Draw 2-D shapes using given dimensions and angles• Recognise, describe and build simple 3-D shapes, including making nets.• Identify angles where they meet at a point, on a straight line or are vertically opposite and find missing angles.• Describe positions on the full coordinate grid (all four quadrants) (link to negative numbers on a number-line).• Draw and translate simple shapes in the coordinate plane and reflect them in the axes |
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