Lynnfield Primary School

Year 6 Medium-term plan

Term 1

Unit	NC objectives	Content
Unit 1: Number and place value	• 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. • Solve number and practical problems that involve all of the above.	**Week 1: Fluency with large numbers** • Read and write numbers up to 10 000 000 and determine the value of each digit. • Read, write, order and compare numbers up to 10 000 000. • Round any whole number to a required degree of accuracy. • Solve number problems that involve all of the above. • Solve practical problems that involve all of the above.
Unit 2: Addition, subtraction, multiplication and division	• Multiply multi-digit numbers up to four digits by a 2-digit whole number using the formal written method of long multiplication. • Divide numbers up to four 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 four digits by a 2-digit number using the formal written method of short division where appropriate, interpreting remainders according to the context. • Perform mental calculations, including with mixed operations and large numbers. • Identify common factors, common multiples and prime numbers. • Solve addition and subtraction multi-step problems in contexts, deciding which operations and methods to use and why.	**Week 2: Understanding multi-digit multiplication** • Multiply multi-digit numbers up to four digits by a 2-digit whole number using the formal written method of long multiplication. • Perform mental calculations, including with mixed operations and large numbers. • Identify common factors, common multiples and prime numbers. • Use estimation to check answers to calculations and determine, in the context of a problem, an appropriate degree of accuracy.
		Week 3: Understanding multi-digit division methods • Divide numbers up to four digits by a 2-digit whole number using the formal written method of long division. • Divide numbers up to four digits by a 2-digit number using the formal written method of short division where appropriate. • Perform mental calculations, including with mixed operations and large numbers.
		Week 4: Solving problems using all four operations • Divide numbers up to four digits by a 2-digit number, interpreting remainders according to the context. • Interpret remainders as whole number remainders, fractions, or by rounding, as appropriate for the context.

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		• Solve addition and subtraction multi-step problems in context, deciding which operations and methods to use and why. • Solve problems involving addition, subtraction, multiplication and division.
Unit 3: Geometry: properties of shapes	• Draw 2D shapes using given dimensions and angles. • Recognize, describe and build simple 3D shapes, including making nets.	**Week 5: Constructing 2D and 3D shapes** • Draw 2D shapes using given dimensions and angles. • Recognize, describe and build simple 3D shapes. • Make nets of simple 3D shapes.
Unit 4: Fractions (including decimals and percentages)	• 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. • Associate a fraction with division and calculate decimal fraction equivalents (e.g. 0.375) for a simple fraction (e.g. $^3/_8$). • Identify the value of each digit in numbers given to three decimal places and multiple and divide numbers by 10, 100 and 1000 giving answers up to three decimal places. • Multiply 1-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. • Recall and use equivalences between simple fractions, decimals and percentages, including in different contexts.	**Week 6: Using equivalences** • Use common multiples to express fractions in the same denomination. • Compare and order fractions, including fractions > 1. • Associate a fraction with division. • Calculate decimal fraction equivalents (e.g. 0.375) for a simple fraction (e.g. $^3/_8$). • Recall and use equivalences between simple fractions, decimals and percentages, including in different contexts.
		Week 7: Adding and subtracting fractions to solve problems • Add and subtract fractions with different denominators and mixed numbers, using the concept of equivalent fractions.
		Week 8: Multiplying and dividing decimals to solve problems • Identify the value of each digit in numbers given to three decimal places. • Multiply and divide numbers by 10, 100 and 1000 giving answers up to three decimal places. • Multiply 1-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.
Unit 5: Ratio and proportion	• Solve problems involving the calculation of percentages, e.g. of measures, and such as 15% of 360, and the use of percentages for comparison.	**Week 9: Working with proportions in ratio and percentage contexts** • Solve problems involving the calculation of percentages, e.g. of measures, and such as 15% of 360, and the use of percentages for comparison.

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Unit 6: Measurement	• 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 three decimal places. • Convert between miles and kilometres. • Recognize when it is possible to use formulae for area and volume of shapes. • 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).	**Week 10: Estimating, comparing and calculating volumes** • Recognize when it is possible to use formulae for volume of shapes. • Calculate volume of cubes and cuboids using standard units (cm^3, m^3). • Estimate volume of cubes and cuboids using standard units (cm^3, m^3). • Compare volume of cubes and cuboids using standard units (cm^3, m^3). • Calculate, estimate and compare volume of cubes and cuboids using standard units (cm^3, m^3), extending to other units (for example mm^3 and km^3).
		Week 11: Converting between units of measure • Solve problems involving the calculation of units of measure, using decimal notation up to three decimal places where appropriate. • Solve problems involving the conversion of units of measure, using decimal notation up to three decimal places where appropriate. • Use, read and write standard units of length, mass and volume using decimal notation to up to three decimal places. • Convert between standard units, converting measurements of length, mass, and volume from a smaller unit of measure to a larger unit, and vice versa, using decimal notation to up to three decimal places. • Convert between miles and kilometres.
Unit 7: Algebra	• Use simple formulae. • Express missing number problems algebraically.	**Week 12: Using letters to represent unknown numbers** • Use simple formulae. • Express missing number problems algebraically.
Unit 8: Geometry: position and direction	• 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.	**Week 13: Points, lines, shapes and translations on the four-quadrant coordinate plane** • Describe positions on the coordinate grid (all four quadrants). • Draw simple shapes on the coordinate plane.

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Term 2

Unit	NC objectives	Content
Unit 9: Number and place value	• Use negative numbers in context, and calculate intervals across zero. • Solve number and practical problems that involve the above.	**Week 1: Negative numbers in context, including counting on and back and in sequences** • Use negative numbers in context. • Calculate intervals across 0. • Solve number problems that involve all of the above. • Solve practical problems that involve all of the above.
Unit 10: Addition, subtraction, multiplication and division	• Divide numbers up to four 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 four digits by a 2-digit number using the formal written method of short division where appropriate, interpreting remainders according to the context. • Perform mental calculations, including with mixed operations and large numbers. • Use their knowledge of the order of operations to carry out calculations involving the four operations. • Solve addition and subtraction multi-step problems in contexts, deciding which operations and methods to use and why. • Solve problems involving addition, subtraction, multiplication and division.	**Week 2: Reasoning about the order used to solve calculations** • Perform mental calculations, including with mixed operations and large numbers. • Use their knowledge of the order of operations to carry out calculations involving the four operations. **Week 3: Mixed operations** • Divide numbers up to four digits by a 2-digit whole number using the formal written method of long division. • Divide numbers up to four digits by a 2-digit number using the formal written method of short division where appropriate. • Perform mental calculations, including with mixed operations and large numbers. • Solve addition and subtraction multi-step problems in contexts, deciding which operations and methods to use and why. • Solve problems involving addition, subtraction, multiplication and division.
Unit 11: Geometry: position and direction	• Draw and translate simple shapes on the coordinate plane, and reflect them in the axes.	**Week 4: Reflections and translations in all four quadrants** • Translate simple shapes on the coordinate plane. • Draw simple shapes on the coordinate plane and reflect them in the axes.

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Unit 12: Fractions (including decimals and percentages)	• 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. $^1/_4 \times {}^1/_2 = {}^1/_8$). • Divide proper fractions by whole numbers (e.g. $^1/_3 \div 2 = {}^1/_6$). • Associate a fraction with division and calculate decimal fraction equivalents (e.g. 0.375) for a simple fraction (e.g. $^3/_8$). • Recall and use equivalences between simple fractions, decimals and percentages, including in different contexts.	**Week 5: Using equivalences and solving problems** • Use common factors to simplify fractions. • Use common multiples to express fractions in the same denomination. • Compare and order fractions, including fractions > 1. • Associate a fraction with division. • Calculate decimal fraction equivalents (e.g. 0.375) for a simple fraction (e.g. $^3/_8$). • Recall and use equivalences between simple fractions, decimals and percentages, including in different contexts. **Week 6: Multiplying and dividing fractions to solve problems** • Multiply simple pairs of proper fractions, writing the answer in its simplest form (e.g. $^1/_4 \times {}^1/_2 = {}^1/_8$). • Divide proper fractions by whole numbers (e.g. $^1/_3 \div 2 = {}^1/_6$).
Unit 13: Statistics	• Interpret and construct pie charts and line graphs and use these to solve problems.	**Week 7: Working with graphs and pie charts** • Interpret pie charts and use these to solve problems. • Construct pie charts and use these to solve problems. • Interpret line graphs and use these to solve problems. • Construct line graphs and use these to solve problems.
Unit 14: Algebra	• 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 8: Using algebra to describe sequences and equations with two unknown values** • Generate linear number sequences. • 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.
Unit 15: Measurement	• Recognize that shapes with the same areas can have different perimeters and vice versa.	**Week 9: Areas of parallelograms, triangles and related shapes** • Recognize that shapes with the same areas can have different perimeters and vice versa.

	• Recognize when it is possible to use formulae for area and volume of shapes. • Calculate the area of parallelograms and triangles.	• Recognize when it is possible to use formulae for area of shapes. • Calculate the area of parallelograms. • Calculate the area of triangles.
Unit 16: Ratio and proportion	• 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 unequal sharing and grouping using knowledge of fractions and multiples.	**Week 10: Solving problems in proportional share situations** • 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 unequal sharing and grouping using knowledge of fractions and multiples.
Unit 17: Geometry: properties of shapes	• Compare and classify geometric shapes based on their properties and sizes and find unknown angles in any triangles, quadrilaterals, and regular polygons. • Illustrate and name parts of circles, including radius, diameter and circumference and know that the diameter is twice the radius. • Recognize angles where they meet at a point, are on a straight line, or are vertically opposite, and find missing angles.	**Week 11: Applying angle properties and relationships to work out the values of unknown angles** • Compare and classify geometric shapes based on their properties and sizes. • Find unknown angles in any triangles, quadrilaterals, and regular polygons. • Recognize angles where they meet at a point, are on a straight line, or are vertically opposite. • Find missing angles.
		Week 12: Shapes and their properties, including circles • Compare and classify geometric shapes based on their properties and sizes. • Illustrate and name parts of circles, including radius, diameter and circumference. • Know that the diameter is twice the radius.

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Term 3

Unit	NC objectives	Content
Unit 18: Statistics	• Calculate and interpret the mean as an average.	**Week 1: Calculate and interpret the mean as an average** • Calculate the mean. • Interpret the mean as an average.
Unit 19: Addition, subtraction, multiplication and division	• 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 addition and subtraction multi-step problems in contexts, deciding which operations and methods to use and why. • Solve problems involving addition, subtraction, multiplication and division.	**Week 2: Solving and comparing multi-step problems** • Perform mental calculations, including with mixed operations and large numbers. • Use their knowledge of the order of operations to carry out calculations involving the four operations. • Solve addition and subtraction multi-step problems in contexts, deciding which operations and methods to use and why. • Solve problems involving addition, subtraction, multiplication and division.
		Week 3: Number and calculation relationships and properties • 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.
Unit 20: Fractions	• Associate a fraction with division and calculate decimal fraction equivalents (e.g. 0.375) for a simple fraction (e.g. $^3/_8$). • 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. • Solve problems which require answers to be rounded to specified degrees of accuracy.	**Week 4: Solving problems involving fractions, decimals and percentages** • Associate a fraction with division and calculate decimal fraction equivalents (e.g. 0.375) for a simple fraction (e.g. $^3/_8$). • 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.
		Week 5: Working with percentages, decimals and fractions • Identify the value of each digit in numbers given to three decimal places.

	• Recall and use equivalences between simple fractions, decimals and percentages, including in different contexts.	• Multiply and divide numbers by 10, 100 and 1000 giving answers up to three 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.
Unit 21: Ratio and proportion	• Solve problems involving the calculation of percentages (e.g. of measures, and such as 15% of 360) and the use of percentages for comparison. • Solve problems involving similar shapes where the scale factor is known or can be found.	**Week 6: Using proportions across percentage and similar-shape situations** • Solve problems involving the calculation of percentages (e.g. of measures, and such as 15% of 360) and the use of percentages for comparison. • Solve problems involving similar shapes where the scale factor is known or can be found.
Secondary Progression		
Unit 1	• Solve problems involving addition, subtraction, multiplication and division. • Use simple formulae. • Generate and describe linear number sequences.	**Week 1: Investigating triangular numbers** • Use and reflect on a problem-solving rule. • Use words, diagrams, algebra and concrete apparatus to explain mathematical reasoning. • Appreciate the power of mathematics, and use logic and reasoning to explain why patterns and results occur.
Unit 2	• Use estimation to check answers to calculations and determine, in the context of a problem, an appropriate degree of accuracy. • Solve problems involving the calculation and conversion of units of measure, using decimal notation up to three decimal places where appropriate. • Interpret and construct pie charts and line graphs and use these to solve problems.	**Week 2: Fake news** • Use multiplication and division in context to explore the validity of statements. • Choose and use data carefully to support arguments and interrogate information presented as facts.
Unit 3	• Solve problems involving the calculation and conversion of units of measure, using decimal notation up to three decimal places where appropriate.	**Week 3: Cupcake calculations** • Use all four operations to solve problems in contexts. • Use diagrams to plan storage solutions.

	• 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 up to three decimal places. • Recognize, describe and build simple 3D shapes, including making nets	
Unit 4	• Solve problems involving addition, subtraction, multiplication and division. • Use simple formulae. • Express missing number problems algebraically.	**Week 4: Investigating and reasoning about numbers** • Use and reflect on a problem-solving rule. • Use words, diagrams, algebra and concrete apparatus to explain mathematical reasoning. • Use logic and reasoning to explain why patterns and results occur.