Year 6 Maths Medium Term Planning

Autumn

Unit A1 | | Number – place value, multiplication and division	
Weeks 1&2	**Learning Objectives**
	Strand: Using and applying mathematics
	• Explain reasoning and conclusions, using words, symbols or diagrams as appropriate
	Strand: Number – place value
	• Find the difference between a positive and a negative integer, or two negative integers, in context
	• Use decimal notation for tenths, hundredths and thousandths, partition, round and order decimals with up to three places, and position them on the number line
	• Read, write, order and compare numbers up to 10 million and determine the value of each digit
	• Use knowledge of place value and multiplication facts to 12 x 12 to derive related multiplication and division facts involving decimals, e.g. 0.8 x 7, 4.8 ÷ 6
	• Use approximations, inverse operations and tests of divisibility to estimate and check results
	Strand: Number – multiplication and division
	• Calculate mentally with integers and decimals: U·t ± U·t, TU x U, TU ÷ U, U·t x U, U·t ÷ U
	• Solve problems involving multi-step calculations using estimation to check answers and rounding when necessary to a specified degree of accuracy

Unit B1	3 weeks	Securing number facts, geometry	
Weeks 3-5	**Learning Objectives**
	Strand: Using and applying mathematics
	• Represent and interpret sequences, patterns and relationships involving numbers and shapes; suggest and test hypotheses; construct and use simple expressions and formulae in words then symbols, e.g. the cost of c pens at 15 pence each is 15c pence
	Strand: Number- addition, subtraction; multiplication and division
	• Use knowledge of multiplication facts to derive quickly squares of numbers to 12 x 12 and the corresponding squares of multiples of 10
	• Use knowledge of place value and multiplication facts to 12 x 12 to derive related multiplication and division facts involving decimals, e.g. 0.8 × 7, 4.8 ÷ 6
	• Recognise that prime numbers have only two factors and identify prime numbers less than 100; find the prime factors of two-digit whole numbers
	• Identify common factors, common multiples and prime numbers
	• Use approximations, inverse operations and tests of divisibility to estimate and check results
	Strand: Geometry
	• Describe, identify and visualise parallel and perpendicular edges or faces and use these properties to classify 2-D shapes and 3-D solids
	• Name parts of a circle (radius, circumference, diameter)
	• Make and draw shapes with increasing accuracy and apply knowledge of their properties
	• Recognise and build 3D shapes including making nets

Unit C1	2 weeks	Statistics and measurement		
Weeks 6-7	**Learning Objectives**			
	Strand: Using and applying mathematics			
	• Suggest, plan and develop lines of enquiry; collect, organise and represent information, interpret results and review methods; identify and answer related questions			
	Strand: Measurement			
	• Select and use standard metric units of measure and convert between units using decimals to two places, e.g. change 2.75 litres to 2750 ml, or vice versa			
	• Read and interpret scales on a range of measuring instruments, recognising that the measurement made is approximate and recording results to a required degree of accuracy; compare readings on different scales, e.g. when using different instruments			
	Strand: Statistics			
	• Solve problems by collecting, selecting, processing, presenting and interpreting data, using ICT where appropriate; draw conclusions and identify further questions to ask			
	• Construct and interpret frequency tables, bar charts with grouped discrete data, and line graphs; interpret and construct pie charts relating to work on angles			
	• Describe and interpret results and solutions to problems using the mean (not mode, median, range)			

Unit D1 | 2 weeks | Calculating and Measurement	
Weeks 8-9	**Learning Objectives**
	Strand: Using and applying mathematics
	• Solve multi-step problems, and problems involving decimals; choose and use appropriate calculation strategies at each stage and rounding when necessary to a specified degree of accuracy
	Strand: Number- addition and subtraction; multiplication and division
	• Use approximations, inverse operations and tests of divisibility to estimate and check results
	• Calculate mentally with integers and decimals: U·t ± U·t, TU x U, TU ÷ U, U·t x U, U·t ÷ U
	• Use efficient written methods to add and subtract integers and decimals, to multiply and divide integers and decimals by a two-digit integer, and to multiply up to four-digit integers by a two-digit integer
	• Divide up to four- digit numbers by two- digit numbers using the formal written method of short and long division
	• Solve problems involving multi-step calculations using estimation to check answers and rounding when necessary to a specified degree of accuracy
	Strand: Measurement
	• Select and use standard metric units of measure and convert between units using decimals to two places, e.g. change 2.75 litres to 2750 ml, or vice versa
	• Measure and calculate using imperial units still in everyday use; know their approximate metric values, converting miles to kilometres
	• Read and interpret scales on a range of measuring instruments, recognising that the measurement made is approximate and recording results to a required degree of accuracy; compare readings on different scales, e.g. when using different instruments
	• Calculate the perimeter and area of rectilinear shapes; estimate the area of an irregular shape by counting squares, use formula length by width for area and volume of shape, calculate area of parallelograms and triangles, use standard units for volume (units cubed)

Unit E1 | 3 weeks | Number – fractions; addition and subtraction; multiplication and division	
Weeks 10-12	**Learning Objectives**
	Strand: Using and applying mathematics
	• Tabulate systematically the information in a problem or puzzle; identify and record the steps or calculations needed to solve it, using symbols where appropriate; interpret solutions in the original context and check their accuracy
	• Explain reasoning and conclusions, using words, symbols or diagrams as appropriate
	• Solve multi-step problems, and problems involving fractions, decimals and percentages; choose and use appropriate calculation strategies at each stage
	Strand: Number- fractions
	• Express a larger whole number as a fraction of a smaller one (e.g. recognise that 8 slices of a 5-slice pizza represents $\frac{8}{5}$ or $1\frac{3}{5}$ pizzas); simplify fractions by cancelling common factors; order a set of fractions by converting them to fractions with a common denominator, use common multiples to express fractions in the same denomination
	• 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 simplest form
	• Divide proper fractions by whole numbers (eg 1/3 divided by 2)
	• Solve simple problems involving direct proportion by scaling quantities up or down
	• Solve problems involving similar shapes where the scale factor is known or can be found
	• Solve problems involving ratio
	Strand: Number – addition and subtraction; multiplication and division
	• Use knowledge of place value and multiplication facts to 12 x 12 to derive related multiplication and division facts involving decimal numbers, e.g. 0.8 x 7, 4.8 ÷ 6
	• Use efficient written methods to add and subtract integers and decimals, to multiply and divide integers and decimals by a two-digit integer, and to multiply up to four-digit integers by a two-digit integer
	• Divide up to four- digit numbers by two- digit numbers using the formal written method of short and long division
	• Relate fractions to multiplication and division, e.g. $6 \div 2 = \frac{1}{2}$ of $6 = 6$ x $\frac{1}{2}$; express a quotient as a fraction, e.g. $35 \div 8 = 4\frac{3}{8}$; find fractions and percentages of whole-number quantities, e.g. $\frac{5}{8}$ of 96, 65% of £260
	• Solve problems involving multi-step calculations using estimation to check answers and rounding when necessary to a specified degree of accuracy

SPRING

Unit A2	2 weeks	Number – place value; multiplication and division	
Weeks 1-2	**Learning Objectives**
	Strand: Using and applying mathematics
	• Explain reasoning and conclusions, using words, symbols or diagrams as appropriate
	• Solve multi-step problems, and problems involving fractions, decimals and percentages; choose and use appropriate calculation strategies at each stage
	Strand: Number – place value
	• Use decimal notation for tenths, hundredths and thousandths, partition, round and order decimals with up to three places, and position them on the number line
	Strand: Number-multiplication and division
	• Use knowledge of place value and multiplication facts to 12 x 12 to derive related multiplication and division facts involving decimals, e.g. 0.8 x 7, 4.8 ÷ 6
	• Use approximations, inverse operations and tests of divisibility to estimate and check results
	• Calculate mentally with integers and decimals: U·t ± U·t, TU x U, TU ÷ U, U·t x U, U·t ÷ U
	• Use efficient written methods to add and subtract integers and decimals, to multiply and divide integers and decimals by a two-digit integer, and to multiply up to four-digit integers by a two-digit integer
	• Divide up to four-digit numbers by two-digit numbers using the formal written method of short and long division
	• Solve problems involving multi-step calculations using estimation to check answers and rounding when necessary to a specified degree of accuracy
	• Use their knowledge of the order of operations to carry out calculations involving the four operations (using brackets)

Unit B2	3 weeks	Number – multiplication and division, geometry	
Weeks 3-5	**Learning Objectives**
	Strand: Using and applying mathematics
	• Tabulate systematically the information in a problem or puzzle; identify and record the steps or calculations needed to solve it, using symbols where appropriate; interpret solutions in the original context and check their accuracy
	• Represent and interpret sequences, patterns and relationships involving numbers and shapes; suggest and test hypotheses; construct and use simple expressions and formulae in words then symbols, e.g. the cost of c pens at 15 pence each is 15c pence
	Strand: Number –multiplication and division
	• Use knowledge of multiplication facts to derive quickly squares of numbers to 12 x 12 and the corresponding squares of multiples of 10
	• Use place value and multiplication facts to 12 x 12 to derive related multiplication and division facts involving decimals e.g. 0.8 x 7, 4.8 ÷ 6
	• Recognise that prime numbers have only two factors and identify prime numbers less than 100; find the prime factors of two-digit whole numbers
	• Identify common factors, common multiples and prime numbers
	• Use approximations, inverse operations and tests of divisibility to estimate and check results
	• Solve problems involving multi-step calculations using estimation to check answers and rounding when necessary to a specified degree of accuracy
	Strand: Geometry
	• Describe, identify and visualise parallel and perpendicular edges or faces and use these properties to classify 2-D shapes and 3-D solids
	• Name parts of a circle (radius, circumference, diameter)
	• Make and draw shapes with increasing accuracy and apply knowledge of their properties
	• Recognise and build 3D shapes including making nets
	• Visualise and draw on grids of different types where a shape will be after reflection, after translations (could express using formula), or after rotation through 90° or 180° about its centre or one of its vertices
	Strand: Number – addition and subtraction; multiplication and division
	• Solve problems involving multi-step calculations using estimation to check answers and rounding when necessary to a specified degree of accuracy

Unit C2 | 2 weeks | Statistics and measurement	
Weeks 6-7	**Learning Objectives**
	Strand: Statistics
	• Solve problems by collecting, selecting, processing, presenting and interpreting data, using ICT where appropriate; draw conclusions and identify further questions to ask
	• Construct and interpret frequency tables, bar charts with grouped discrete data, and line graphs; interpret and construct pie charts relating to work on angles
	• Describe and interpret results and solutions to problems using the mean (no longer range, median and mode)
	Strand: Measurement
	• Select and use standard metric units of measure and convert between units using decimals to two places, e.g. change 2.75 litres to 2750 ml, or vice versa
	• Read and interpret scales on a range of measuring instruments, recognising that the measurement made is approximate and recording results to a required degree of accuracy; compare readings on different scales, e.g. when using different instruments
	Strand: Number – addition and subtraction; multiplication and division
	• Solve problems involving multi-step calculations using estimation to check answers and rounding when necessary to a specified degree of accuracy

Unit D2 | 2 weeks | Number, measurement and geometry

Weeks 8-9	**Learning Objectives**
	Strand: Using and applying mathematics
	• Solve multi-step problems, and problems involving decimals; choose and use appropriate calculation strategies at each stage
	Strand: Number – addition and subtraction; multiplication and division
	• Calculate mentally with integers and decimals: U·t ± U·t, TU x U, TU ÷ U, U·t x U, U·t ÷ U
	• Use efficient written methods to add and subtract integers and decimals, to multiply and divide integers and decimals by a two-digit integer, and to multiply up to four-digit integers by a two-digit integer
	• Divide up to four- digit numbers by two- digit numbers using the formal written method of short and long division
	• Solve problems involving multi-step calculations using estimation to check answers and rounding when necessary to a specified degree of accuracy
	• Use their knowledge of the order of operations to carry out calculations involving the four operations (using brackets)
	• Use approximations, inverse operations and tests of divisibility to estimate and check results
	Strand: Measurement
	• Select and use standard metric units of measure and convert between units using decimals to two places, e.g. change 2.75 litres to 2750 ml, or vice versa
	Strand: Geometry
	• Estimate, measure and draw angles, on their own and in shapes; calculate angles in a triangle, on a line or around a point and in quadrilaterals and regular polygons. Recognise vertically opposite angles.
	• Use coordinates in the first quadrant to draw, locate and complete shapes that meet given properties
	• Visualise and draw on grids of different types where a shape will be after reflection, after translations (could express using formula) (no longer rotation)

Unit E2 | 3 weeks | Number – multiplication and division, fractions	
Weeks 10-12	**Learning Objectives**
	Strand: Using and applying mathematics
	• Tabulate systematically the information in a problem or puzzle; identify and record the steps or calculations needed to solve it, using symbols where appropriate; interpret solutions in the original context and check their accuracy
	• Explain reasoning and conclusions, using words, symbols or diagrams as appropriate
	Strand: Number- multiplication and division
	• Solve problems involving multi-step calculations using estimation to check answers and rounding when necessary to a specified degree of accuracy
	• Relate fractions to multiplication and division, e.g. $6 \div 2 = \frac{1}{2}$ of $6 = 6 \times \frac{1}{2}$; express a quotient as a fraction, e.g. $35 \div 8 = 4\frac{3}{8}$; find fractions and percentages of whole-number quantities, e.g. $\frac{5}{8}$ of 96, 65% of £260
	Strand: Number – fractions, ratio and proportion
	• Simplify fractions by cancelling common factors; order a set of fractions by converting them to fractions with a common denominator; use common multiples to express fractions in the same denomination
	• 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 simplest form
	• Divide proper fractions by whole numbers (eg 1/3 divided by 2)
	• Express one quantity as a percentage of another, e.g. express £400 as a percentage of £1000; find equivalent percentages, decimals and fractions
	• Solve simple problems involving direct proportion by scaling quantities up or down
	• Solve problems involving similar shapes where the scale factor is known or can be found
	• Solve problems involving ratio

Summer

Unit A3 | 2 weeks | Number – place value; addition and subtraction; multiplication and division	
Weeks 1-2	**Learning Objectives**
	Strand: Using and applying mathematics
	• Explain reasoning and conclusions, using words, symbols or diagrams as appropriate
	• Solve multi-step problems, and problems involving fractions, decimals and percentages; choose and use appropriate calculation strategies at each stage
	Strand: Number – place value
	• Use decimal notation for tenths, hundredths and thousandths, partition, round and order decimals with up to three places, and position them on the number line
	Strand: Number – addition and subtraction; multiplication and division
	• Calculate mentally with integers and decimals: U·t ± U·t, TU x U, TU ÷ U, U·t x U, U·t ÷ U
	• Use efficient written methods to add and subtract integers and decimals, to multiply and divide integers and decimals by a two-digit integer, and to multiply up to four-digit integers by a two-digit integer
	• Divide up to four- digit numbers by two- digit numbers using the formal written method of short and long division
	• Solve problems involving multi-step calculations using estimation to check answers and rounding when necessary to a specified degree of accuracy
	• Use approximations, inverse operations and tests of divisibility to estimate and check results

Unit B3 | 3 weeks | Number – multiplication and division, geometry	
Weeks 3-5	**Learning Objectives**
	Strand: Using and applying mathematics
	• Tabulate systematically the information in a problem or puzzle; identify and record the steps or calculations needed to solve it, using symbols where appropriate; interpret solutions in the original context and check their accuracy
	• Represent and interpret sequences, patterns and relationships involving numbers and shapes; suggest and test hypotheses; construct and use simple expressions and formulae in words then symbols, e.g. the cost of c pens at 15 pence each is 15c pence
	Strand: Number – multiplication and division
	• Use knowledge of multiplication facts to derive quickly squares of numbers to 12 x 12 and the corresponding squares of multiples of 10
	• Use knowledge of place value and multiplication facts to 12 x 12 to derive related multiplication and division facts involving decimals, e.g. 0.8 x 7, 4.8 ÷ 6
	• Recognise that prime numbers have only two factors and identify prime numbers less than 100; find the prime factors of two-digit whole numbers
	• Use approximations, inverse operations and tests of divisibility to estimate and check results
	• Solve problems involving multi-step calculations using estimation to check answers and rounding when necessary to a specified degree of accuracy
	Strand: Geometry
	• Describe, identify and visualise parallel and perpendicular edges or faces and use these properties to classify 2-D shapes and 3-D solids
	• Name parts of a circle (radius, circumference, diameter)
	• Make and draw shapes with increasing accuracy and apply knowledge of their properties
	• Recognise and build 3D shapes including making nets

Unit C3 | 2 weeks | Statistics and measurement

Weeks 6-7	**Learning Objectives**
	Strand: Statistics
	• Solve problems by collecting, selecting, processing, presenting and interpreting data, using ICT where appropriate; draw conclusions and identify further questions to ask
	• Construct and interpret frequency tables, bar charts with grouped discrete data, and line graphs; interpret and construct pie charts relating to work on angles
	• Describe and interpret results and solutions to problems using the mean (no longer median, mode or range)
	• Describe and predict outcomes from data using the language of chance or likelihood
	Strand: Measurement
	• Select and use standard metric units of measure and convert between units using decimals to two places, e.g. change 2.75 litres to 2750 ml, or vice versa
	Strand: Statistics
	• Read and interpret scales on a range of measuring instruments, recognising that the measurement made is approximate and recording results to a required degree of accuracy; compare readings on different scales, e.g. when using different instruments
	Strand: Number – addition and subtraction; multiplication and division
	• Solve problems involving multi-step calculations using estimation to check answers and rounding when necessary to a specified degree of accuracy

Unit D3 | 2 weeks | Number – addition and subtraction, multiplication and division; Measurement	
Weeks 8-9	**Learning Objectives**
	Strand: Using and applying mathematics
	• Solve multi-step problems, and problems involving decimals; choose and use appropriate calculation strategies at each stage
	Strand: Number- addition and subtraction; multiplication and division
	• Calculate mentally with integers and decimals: U·t ± U·t, TU x U, TU ÷ U, U·t x U, U·t ÷ U
	• Use efficient written methods to add and subtract integers and decimals, to multiply and divide integers and decimals by a two-digit integer, and to multiply up to four-digit integers by a two-digit integer
	• Divide up to four- digit numbers by two- digit numbers using the formal written method of short and long division
	• Solve problems involving multi-step calculations using estimation to check answers and rounding when necessary to a specified degree of accuracy
	• Use approximations, inverse operations and tests of divisibility to estimate and check results
	Strand: Measurement
	• Select and use standard metric units of measure and convert between units using decimals to two places, e.g. change 2.75 litres to 2750 ml, or vice versa
	• Measure and calculate using imperial units still in everyday use; know their approximate metric values (converting miles to kilometres)
	• Read and interpret scales on a range of measuring instruments, recognising that the measurement made is approximate and recording results to a required degree of accuracy; compare readings on different scales, e.g. when using different instruments
	• Calculate the perimeter and area of rectilinear shapes; estimate the area of an irregular shape by counting squares

Unit E3 | 3 weeks | Number – addition and subtraction, multiplication and division, fractions, ratio and proportion	
Weeks 10-12	**Learning Objectives**
	Strand: Using and applying mathematics
	• Tabulate systematically the information in a problem or puzzle; identify and record the steps or calculations needed to solve it, using symbols where appropriate; interpret solutions in the original context and check their accuracy
	• Explain reasoning and conclusions, using words, symbols or diagrams as appropriate
	• Solve multi-step problems, and problems involving fractions, decimals and percentages; choose and use appropriate calculation strategies at each stage
	Strand: Number – multiplication and division
	• Use knowledge of place value and multiplication facts to 12 x 12 to derive related multiplication and division facts involving decimal numbers, e.g. 0.8 x 7, 4.8 ÷ 6
	Strand: Number - fractions
	• Use efficient written methods to add and subtract integers and decimals, to multiply and divide integers and decimals by a two-digit integer, and to multiply up to four-digit integers by a two-digit integer
	• Divide up to four- digit numbers by two- digit numbers using the formal written method of short and long division
	• Solve problems involving multi-step calculations using estimation to check answers and rounding when necessary to a specified degree of accuracy
	• Relate fractions to multiplication and division, e.g. $6 \div 2 = \frac{1}{2}$ of $6 = 6 \times \frac{1}{2}$; express a quotient as a fraction, e.g. $35 \div 8 = 4\frac{3}{8}$; find fractions and percentages of whole-number quantities, e.g. 5§8 of 96, 65% of £260
	• Simplify fractions by cancelling common factors; order a set of fractions by converting them to fractions with a common denominator; use common multiples to express fractions in the same denomination
	• Express one quantity as a percentage of another, e.g. express £400 as a percentage of £1000; find equivalent percentages, decimals and fractions
	• Solve simple problems involving direct proportion by scaling up or down
	• Solve problems involving similar shapes where the scale factor is known or can be found
	• Solve problems involving ratio