

Year 6 Mathematics Medium Term Planning Autumn

Mental Maths objectives to be covered:

Number - Number and place value:

Order and compare decimals with up to 3 decimal places, and determine the value of each digit, and fractions.

Round any whole and decimal number to a required degree of accuracy.

Use negative numbers in context, and calculate intervals across zero.

Multiply and divide whole and decimal numbers by 10, 100 and 1000.

Number – Addition and Subtraction:

Perform mental calculations, including with mixed operations and large numbers.

Add and subtract any pair of appropriate whole numbers mentally.

Find decimals with a sum of $\frac{1}{10}$.

Number – Multiplication and division:

Identify common factors, common multiples and prime numbers.

Recall multiplication and division tables to 12 x 12 and derive quickly squares of numbers to 12 x 12 and the corresponding squares of multiples of 10. - Multiplication tables and related division facts must be practised daily e.g. through transition moments!

Double and half any whole number.

Number – Fractions

Find fraction and percentages of whole number quantities, shapes and measures.

Recall and use equivalences between simple fractions, decimals and percentages, including in different contexts.

Recognise equivalent fractions.

Algebra:

Use simple formulae.

Measurement:

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.

Geometry – Properties of shape

Calculate the area and perimeter of regular shapes and rectangles.

Things to remember:

It is important to consistently use the appropriate vocabulary and insist that the children do the same (see 'Talk and Tasks' document).

Learning of times tables should be prioritised and reflected in the children's 'Maths Mountains' results.

The plans should be adjusted at least half-terminly based on teacher assessments and analyses. The plans may also need adjusting due to changes in the number of weeks in a term or half term.

Cross-curricular links between mathematics and other subjects should be explored wherever relevant.

Objectives in **bold** are KPIs. **Highlighted** objectives will be assessed during the term (may be part). Objectives in *italics* are taken from the previous or next year.

Problem-solving and reasoning should be integrated into all activities.
 Opportunities to explain and justify opinions and make explanations should be incorporated into planning.
 Children should be challenged and extended through the problems they are given to solve.
 Use a range of models and images to support conceptual understanding.

Week	Date	Strand	Curriculum objectives derived from the 2014 Curriculum	Resources
		Numbers to 10 Million (1 ½ weeks)	<ul style="list-style-type: none"> Read, write, order and compare numbers up to 10 000 000 and determine the value of each digit. To compare and order numbers to 10 000 000; to create combinations of numbers using a fixed number of digits. Round any whole number to a required degree of accuracy. 	0–9 digit cards 1–9 digit cards Blank number line (increments marked) Place-value charts Place-value discs
		Four Operations with Whole Numbers (4 ½ weeks)	<ul style="list-style-type: none"> Use their knowledge of the order of operations to carry out calculations involving the four operations. Multiply multi-digit numbers up to 4 digits by a 2-digit whole number using the formal written method of long multiplication. 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. 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 where appropriate, interpreting remainders according to the context. Identify common factors, common multiples and prime numbers. 	1–6 digit cards 1–9 digit cards Counters Operations cards Place-value discs Six-sided dice Square coloured tiles
		Fractions (3 weeks)	<ul style="list-style-type: none"> Use common factors to simplify fractions; use common multiples to express fractions in the same denomination. Compare and order fractions, including fractions greater than 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 (for example $\frac{1}{4} \times \frac{1}{2} = \frac{1}{8}$). Divide proper fractions by whole numbers (for example, $\frac{1}{3} \div 2 = \frac{1}{6}$). 	1–9 digit cards Circular representations of fractions Fraction strips (card/paper) Pattern blocks Whiteboards and pens
		Decimals (3 weeks)	<ul style="list-style-type: none"> 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. Associate a fraction with division and calculate decimal fraction equivalents [for example, 0.375] for a simple fraction [for example, $\frac{3}{8}$]. Use written division methods in instances where the answer has up to two decimal places. Multiply 1-digit numbers with up to two decimal places by whole numbers. 	0; 2; 3 and 9 digit cards 0–3 digit cards Base 10 materials Calculators Place-value cards Place-value charts Place-value discs String

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Year 6 Mathematics Medium Term Planning Spring

Mental Maths objectives to be covered:

Number - Number and place value:

Order and compare decimals with up to 3 decimal places and position on a number line, and determine the value of each digit.

Round any whole and decimal number to a required degree of accuracy.

Use negative numbers in context, and calculate intervals across zero.

Multiply and divide whole and decimal numbers by 10, 100 and 1000.

Number – Addition and Subtraction:

Perform mental calculations, including with mixed operations and large numbers.

Add and subtract any pair of appropriate whole numbers mentally.

Find pairs with a sum of 100, multiples of 50 with a sum of 1000 and decimals with a sum of $1/10$.

Number – Multiplication and division:

Identify common factors, common multiples and prime numbers.

Recall multiplication tables to 12×12 and derive related facts; derive quickly squares of numbers to 12×12 and the corresponding squares of multiples of 10.

Double and half decimals.

Algebra:

Generate and describe linear number sequences.

Express missing number problems algebraically.

Number - fractions:

Compare and order fractions, including fractions.

Find fraction and percentages of whole number quantities, shapes and measures.

Recall and use equivalences between simple fractions, decimals and percentages, including in different contexts.

Recognise equivalent fractions.

Measurement:

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.

Geometry – Properties of shape:

Calculate the area and perimeter of regular shapes and rectangles.

Things to remember:

It is important to consistently use the appropriate vocabulary and insist that the children do the same (see 'Talk and Tasks' document).

Learning of times tables should be prioritised and reflected in the children's 'Maths Mountains' results.

The plans should be adjusted at least half-terminally based on teacher assessments and analyses. The plans may also need adjusting due to changes in the number of weeks in a term or half term.

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 Use a range of models and images to support conceptual understanding.

Week	Date	Strand	Curriculum objectives derived from the 2014 Curriculum	Resources
		Measurements <i>(1 ½ weeks)</i>	<ul style="list-style-type: none"> 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. Solve problems involving the calculation and conversion of units of measure, using decimal notation up to three decimal places where appropriate. 	Calculators Rulers
		Word Problems <i>(1 ½ weeks)</i>	<ul style="list-style-type: none"> Solve problems involving the relative sizes of two quantities where missing values can be found 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. Solve problems involving the calculation and conversion of units of measure, using decimal notation up to three decimal places where appropriate. 	None
		Percentage <i>(1 week)</i>	<ul style="list-style-type: none"> 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. 	Bar model strips
		Ratio <i>(2 weeks)</i>	<ul style="list-style-type: none"> Recall and use equivalences between simple fractions, decimals and percentages, including in different contexts. Solve problems involving the relative sizes of two quantities where missing values can be found by using integer multiplication and division facts. 	Bar model strips Counters Linking cubes
		Algebra <i>(2 weeks)</i>	<ul style="list-style-type: none"> Generate and describe linear number sequences. Express missing number problems algebraically. Use simple formulae. Enumerate possibilities of combinations of two variables. Find pairs of numbers that satisfy an equation with two unknowns. 	1–12 digit cards Bar model strips Counters Match sticks or wooden sticks Pattern blocks (squares and triangles)
		Area and Perimeter <i>(1 week)</i>	<ul style="list-style-type: none"> Calculate the area of parallelograms and triangles. 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. 	Centimetre-squared paper Grid paper Paper parallelograms (various areas) Paper/card mixed triangles Paper/card parallelograms Paper/card scalene triangles Rulers Scissors

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Year 6 Mathematics Medium Term Planning Summer

Mental Maths objectives to be covered:

Number - Number and place value:

Order and compare decimals with up to 3 decimal places, and determine the value of each digit.

Round any whole and decimal number to a required degree of accuracy.

Use negative numbers in context, and calculate intervals across zero.

Multiply and divide whole and decimal numbers by 10, 100 and 1000.

Number – Addition and Subtraction:

Perform mental calculations, including with mixed operations and large numbers.

Add and subtract any pair of appropriate whole numbers mentally.

Find decimals with a sum of $\frac{1}{10}$.

Number – Multiplication and division:

Identify common factors, common multiples and prime numbers.

Recall multiplication tables to 12×12 and derive related facts.

Derive quickly squares of numbers and the corresponding squares of multiples of 10.

Number - fractions:

Compare and order fractions, including fractions > 1 .

Find fraction and percentages of whole number quantities, shapes and measures.

Recall and use equivalences between simple fractions, decimals and percentages, including in different contexts.

Recognise equivalent fractions.

Measurement:

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.

Things to remember:

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Problem-solving and reasoning should be integrated into all activities.
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Week	Date	Strand	Curriculum objectives derived from the 2014 Curriculum	Resources
		Volume (1 week)	<ul style="list-style-type: none"> Calculate, estimate and compare volume of cubes and cuboids using standard units, including cubic centimetres (cm³) and cubic metres (m³), and extending to other units [for example, mm³ and km³]. Recognise when it is possible to use formulae for area and volume of shapes. Use, read, write and convert between standard units, converting measurements of volume from a smaller unit of measure to a larger unit, and vice versa. 	Centimetre cubes
		Geometry (2 ½ weeks)	<ul style="list-style-type: none"> Recognise angles where they meet at a point, are on a straight line, or are vertically opposite, and find missing angles. 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. Draw 2-D shapes using given dimensions and angles. Solve problems involving similar shapes where the scale factor is known or can be found. Recognise, describe and build simple 3-D shapes, including making nets. 	3-D shapes made from Clix Paper Protractors Rulers (cm) Scissors Squared paper
		Negative Numbers (½ week)	<ul style="list-style-type: none"> Use negative numbers in context, and calculate intervals across zero. Solve number and practical problems that involve negative numbers. 	None
		Position and Movement (2 weeks)	<ul style="list-style-type: none"> Use negative numbers in context, and calculate intervals across zero. 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. 	Demonstration thermometer Mirrors Rulers Squared paper
		Graphs and Averages (2 ½ weeks)	<ul style="list-style-type: none"> Calculate and interpret the mean as an average. Interpret and construct pie charts and use these to solve problems. Interpret and construct line graphs and use these to solve problems. Convert between miles and kilometres. 	None
		Post-SATs transition activities		As required

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