

## Hampshire Medium Term Plans for Mathematics: Block A (for use with mixed age classes).

Term	Wk1	Wk2	Wk3	Wk4	Wk5	Wk6	Half Term	Wk7	Wk8	Wk9	Wk10	Wk11	Wk12	End of Term		
Autumn	A1			B1				M1	C1			D1				
Spring	A2			B2				M2	C2			D2			M3	
Summer	A3			B3					C3			D3			M4	
				SATs (Y2/Y6)												

Content common to all blocks	Block A	Block B	Block C	Block D
Fluency (Place value and a sense of number) Problem solving Reasoning	Addition and subtraction (for whole and part numbers) Geometry and Measure	Multiplication and division (for whole and part numbers) Statistics and Measure	Addition and subtraction (for whole and part numbers) Geometry and Measure	Multiplication and division (for whole and part numbers) Statistics and Measure

### Key:

- **A (B, C, D) 1 (2, 3):** Block A (B, C, D): Term 1 (2, 3)
- **M1 (2, 3):** Assessment milestone 1 (2, 3)
- **M4:** Assessment milestone 4: Transition to next year group ~ could be End of Year Key Performance Indicators, summative or formative assessments, transition conversations with attainment evidence.

Blocks are laid out across year groups to enable schools to combine two (or three) year groups when planning for mixed age classes (vertical year groups)

There is one document for each of the four blocks.

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A1 (Autumn Term)				
Year	Place Value and a Sense of Number	Problem Solving and Reasoning	Core Calculation (four rules for whole and part numbers)	Geometry and Measure
1	Count to and across 100 from 0 (forwards). Identify one more and one less from any whole number. Begin to use a number line to order whole numbers Read and write whole numbers from 1 to 20 in numbers	Solve one step problems that involve addition and subtraction, including empty box problems.	<u>Addition and Subtraction</u> Begin to represent calculations using symbols for addition (+), subtraction (-) and equality (=) Add and subtract with one digit numbers Know or derive number bonds to 20 using patterning and concrete objects.	<u>Geometry</u> Recognise and name common 2-D shapes such as squares and circles  <u>Measure</u> Recognise and know the value of different denominations of UK currency
2	Recall and use number bonds to 20 fluently Recognise the place value of each digit in a two-digit number (tens and ones)	Solve addition and subtraction problems using concrete and pictorial representations alongside number recordings, including in the context of money of the same unit.	<u>Addition and Subtraction</u> Use and apply known number facts to 20 Add and subtract whole numbers using concrete and pictorial representations, including: - a two-digit number and ones (27+3) - a two digit number and tens (27+30)	<u>Geometry</u> Identify and describe the properties of 2-D shapes including the number of sides and symmetry in a vertical line. Identify 2-D shapes on the surface of 3-D shapes (circle on a cylinder, triangle on a pyramid) <u>Measure</u> Find different combinations of coins that equal the same amount of money Compare and sequence intervals of time
3	Recognise the PV of each digit in a three-digit number (hundreds, tens and ones). Find 10 more and 10 less than a given number	Add and subtract mentally using 'nearly numbers' and patterning 15+15=30 16+15=31 16+16=32 16+17 = ?  Solve problems involving money, length and mass	<u>Addition and Subtraction</u> Add and subtract numbers mentally (with jottings): Three-digit number and ones (362+7) Three-digit number and hundreds (362+700) ~ use base 10 materials to support and reason  Use inverses to check answers (part-whole bar model)  Estimate answers using 'nearly numbers' 51+48 is nearly 50+50	<u>Geometry</u> Draw simple 2-D shapes accurately. Identify right angles. Identify horizontal and vertical lines. Make 3-D shapes using modelling materials. <u>Measure</u> Measure the perimeter of simple 2-D shapes Measure, compare , add and subtract lengths and mass in standard units  Add and subtract amounts of money

## Hampshire Medium Term Plans for Mathematics: Block A (for use with mixed age classes).

4	Find 1000 more than any given number Recognise the place value of each digit in a four-digit number (Th, H, T, O)	Solve addition and subtraction two-step problems in context, deciding which operations to use and why	<u>Addition and Subtraction</u> Add and subtract three digit numbers using a variety of strategies Estimate and use inverse operations to check answers to a calculation (use bar modelling and number lines to explain the structure)	<u>Geometry</u> Compare and classify geometric shapes, based on their properties and sizes. Identify acute and obtuse angles Complete a simple symmetric figure with respect to a specific line of symmetry. Describe positions on a 2D grid as coordinates in the first quadrant <u>Measure</u> Measure and calculate the perimeter of a rectilinear figure (including squares) in centimetres and metres
5	Read, write, order and compare numbers to at least 1,000,000. Determine the value of each digit	Solve problems to develop the use of heuristics: focus on being systematic.	<u>Addition and Subtraction</u> Solve multi-step addition and subtraction problems in contexts using a range of representations. Decide which operation and method to use and why.	<u>Geometry</u> Identify 3-D shapes including cubes and other cuboids from 2-D representations (nets) Know that angles are measured in degrees Estimate and compare acute, obtuse and reflex angles. Know that angles around a point (one complete turn) are equivalent to 360°. <u>Measure</u> Measure and calculate the perimeter of composite rectilinear shapes in cm and m.
6	Read, write and compare numbers up to 10,000,000. Determine the value of each digit.  Generate and describe linear number sequences  Perform mental calculations, including large numbers with mixed operations (jottings are	Solve problems involving perimeter and area of compound rectilinear shapes and triangles. Explore shapes with the same perimeter and different areas and vice versa (e.g. Pentominoes)	<u>Calculation</u> Solve problems involving addition and subtraction using formal methods alongside structural representations such as PV counters. <u>Fractions</u> Use equivalence and common multiples to simplify fractions. Compare and order fractions, including $>1$ (use bar modelling and a number line to demonstrate) Add and subtract fractions, using the idea of common denominators to write equivalent fractions (bar model)	<u>Geometry</u> Describe positions on the full coordinate grid (all four quadrants) Illustrate and name parts of the circle (radius, diameter, and circumference). Know that 2 radii equal one diameter. Be able to calculate missing angles at a point, on a straight line and when they are vertically opposite. <u>Measure</u> Recognise that shape with the same area can have different perimeters and vice versa

## Hampshire Medium Term Plans for Mathematics: Block A (for use with mixed age classes).

	important here)		<u>Algebra</u> Use simple formulae. Recognise when it is possible to use formulae for the area and volume of shapes (rectangles and triangles)	
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A2 (Spring Term)				
Year	Place Value and a Sense of Number	Problem Solving and Reasoning	Core Calculation  (four rules for whole and part numbers)	Geometry and Measure
1	Count to and across 100 from any given number (forwards and backwards) Identify one more and one less from any whole number and ten more, ten less (using a number line and hundred square) Use a number line to order whole numbers Read and write whole numbers from 1 to 20 in numbers and words	Solve one and two step problems that involve addition and subtraction, including empty box problems. Show the method and answer in a variety of ways	<u>Addition and Subtraction</u> Add and subtract one-digit and two-digit whole numbers to 20, including zero and using patterning to generate 'new for old' facts.	<u>Geometry</u> Recognise and name common 2-D shapes such as common quadrilaterals and different triangles. Be able to say what is the same and what is different about common 2-D shapes. Explore different orientations of the same shape  Describe position, directions and movements as half and quarter turns
2	Generate new number facts from known facts, using 'nearly' numbers. (If $15 - 5 = 10$ ; then $15 - 6 = 9$ )	Solve addition and subtraction problems using concrete and pictorial representations alongside number recordings, including in the context of money, including given change.	<u>Addition and Subtraction</u> Add and subtract whole numbers using concrete and pictorial representations, including: - two two-digit numbers with support  Show that the addition of two numbers can be done in any order (commutative) using groups of objects and jumps on a number line	<u>Geometry</u> Use mathematical vocabulary to describe position, direction and movement ( give instructions on turn and travel to other pupils, programme a Beebot) <u>Measure</u> Tell and write the time to quarter to and past the hour

## Hampshire Medium Term Plans for Mathematics: Block A (for use with mixed age classes).

				<p>Draw the hands on a clock face to show these times</p> <p>Know the number of minutes in an hour and hours in a day.</p>
3	<p>Compare and order numbers up to 1000</p> <p>Read and write numbers up to 1000 in numerals and words</p>	<p>Solve missing number problems for addition and subtraction with numbers of up to three digits.</p>	<p><u>Addition and Subtraction</u></p> <p>Add and subtract numbers with up to three digits in a variety of informal ways, including partitioning and considering 'nearly numbers'. (395+ 406 is the same as 395 + 5 + 400 + 1). Use part- whole models (bar) to show inverse relationship.</p>	<p><u>Geometry</u></p> <p>Recognise angles as a property of shape. Identify right angles. Recognise that two right angles make a half turn ( a 'straight' angle)</p> <p><u>Measure</u></p> <p>Measure and compare mass in kg and g</p>
4	<p>Count backwards through zero to include negative numbers</p>	<p>Use partitioning with appropriate resources, models and images to reason about how column methods work (conceptual to support procedural)</p>	<p><u>Addition and Subtraction</u></p> <p>Add and subtract with up to four digits, beginning to develop column methods with concrete and pictorial representations alongside</p>	<p><u>Geometry</u></p> <p>Describe movements between positions as translations of a given unit to the left/right and up/down (the square has moved 3 squares to the left and 2 squares down)</p> <p>Plot given points to draw the sides to complete a polygon.</p> <p><u>Measure</u></p> <p>Estimate, compare and calculate with capacity in litres and ml</p>
5	<p>Interpret negative numbers in context. Count forwards and backwards with positive and negative whole numbers through zero</p>	<p>Solve problems to develop the use of heuristics: focus on being systematic and making a list to find all possibilities</p>	<p><u>Addition and Subtraction</u></p> <p>Add and subtract increasingly large numbers mentally using doubles, near doubles, one/ten more and less. Important to use jottings, approximations and different representations, models and images.</p> <p>3000 – 999 is nearly 3000 – 1000</p> <p>3000 – 183 = 3000 – 200 +17</p> <p>3000 – 2760: count up from 2760 (240) – complements to 100 help (76+24).</p>	<p><u>Geometry</u></p> <p>Know that angles at a point on a straight line are equal to 180°, right angles are equal to 90°. Explore other multiples of 90° in the context of parts of a turn.</p> <p><u>Measure</u></p> <p>Use four operations, decimal notation and scaling to solve problems involving money.</p>
6	<p>Use partitioning to make sense of very large numbers.</p>	<p>Solve ratio and proportion problems involving similar shapes where the scale factor is known</p>	<p><u>Calculation</u></p> <p>Use knowledge of the order of operations to carry out calculations involving all four.</p>	<p><u>Geometry</u></p> <p>Draw and translate simple shapes on the coordinate plane and reflect them in the</p>

## Hampshire Medium Term Plans for Mathematics: Block A (for use with mixed age classes).

	Round to an appropriate degree of accuracy when estimating.	or can be found	<u>Algebra</u> Find pairs of numbers that satisfy number sentences involving two unknowns	axes <u>Measure</u> Convert between miles and kms
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A3 (Summer Term)				
Year	Place Value and a Sense of Number	Problem Solving and Reasoning	Core Calculation  (four rules for whole and part numbers)	Geometry and Measure
1	Count on to and back from any given whole number, up to and across 100 Use the number line and comparative language to order whole numbers (more than/less than)	Be able to use manipulatives and pictorial representations to show how to find the solution to addition and subtraction problems in context.	<u>Addition and Subtraction</u> Represent and use number bonds and related subtraction facts with 20, exploring patterning and systems to support a developing sense of number and the embedding of number facts. Solve empty box problems.	<u>Geometry</u> Explore common 3-D shapes and their properties, using knowledge of 2-D shapes to describe the faces. Include cuboids, pyramids and spheres
2	Know that the position (place) of a digit in a number determines its value. Show understanding by partitioning into hundreds, tens and ones.  Recall (or derive) and use addition and subtraction facts to 20 and 100	Use place value and number facts to solve problems involving measure and in other real life contexts, using multiple representations	<u>Addition and Subtraction</u> Calculate with two digit numbers, showing an understanding of the commutative law and use of the inverse as an alternative representation using the idea of whole and part (bar models and other representations) When adding three or more numbers, look for pairs that are easy to add (8+5+2 is better organised as 8+2+5 to give 15 as the bond to 10 is clear.	<u>Geometry</u> Compare and sort common 2D and 3D shapes. Explain choices about sorting. <u>Measure</u> Add and subtract money of the same unit, including giving change.
3	Count from 0 in multiples of 4, 8, 50 and 100	Solve problems that involve independently choosing a diagram or representation to support a + or – problem	<u>Addition and Subtraction</u> Develop a range of strategies for addition and subtraction calculations and explore which method to choose and why.	<u>Geometry</u> Identify lines of symmetry in simple 2-D shapes. Know when a polygon is symmetrical and when it is non-symmetrical. Describe the angle properties of shape,

## Hampshire Medium Term Plans for Mathematics: Block A (for use with mixed age classes).

				<p>including introducing the terms acute and obtuse for angles.</p> <p><u>Measure</u>            Draw and measure straight lines in cms and introduce 0.5cm (5mm)            Measure perimeters of rectilinear shapes (those with right angles)</p>
4	<p>Explore partitioning up to numbers in different ways.            How many ways can a partition 3?            (3+0; 2+1; 1+1+1)            How many ways can I partition 19 into two parts?            (19+0; 18+1; ....)            Model heuristics such as being systematic and patterning.</p>	<p>Solve problems involving length where lengths are given in two different units so that pupils must convert before solving e.g. I walked 3500 m and my friend walked 3.6 km. Who walked furthest, justify your answer.</p>	<p><u>Addition and Subtraction</u>            Continue to develop fluency with addition and subtraction by working with a few four digit examples and generating all possible representations and solutions e.g. 2563 + 3491 can be solved in a variety of ways. What could it mean? Crowds at a sports match / ants in two ant hills ....            Show the solution using as many different ways as possible (bar model, Dienes, partitioning in a range of ways, rounding and adjusting the answer and so on</p>	<p><u>Geometry</u>            Plot specified points to complete a polygon on a coordinate grid. Reason about possible places if the final point in the quadrilateral makes it into a kite, or a rectangle, or a parallelogram  <u>Measure</u>            Convert between length measurements (km, m, cm and mm)</p>
5	<p>Explore different ways of partitioning numbers for different reasons.  <math>36 + 17 = (30 + 10) + (6 + 7)</math>  <math>36 - 17 = (20 - 10) + (16 - 7)</math></p>	<p>Solve problems using mathematical reasoning and questioning. Ensure that pupils can offer solutions with a wide range of representations, including concrete and pictorial to demonstrate an understanding of structure.</p>	<p><u>Addition and Subtraction</u>            Be able to add and subtract part and whole numbers, showing a variety of representations and justifying solutions.</p>	<p><u>Geometry</u>            Draw given angles, use an angle measurer accurately.            Use angles to reason about regular and irregular polygons.            Find missing angles around a point and on a straight line.  <u>Measure</u>            Calculate and measure the perimeter and area of compound rectilinear shapes. Find missing values for sides or areas.</p>
SATs revision				
<p>Support pupils by reviewing past questions and modelling solutions and strategies.            Let pupils answer a similar question collaboratively and then independently.            Build this up to groups of questions            Do not spend time on 'practice papers' as it is too late to test what they do not know!</p>				

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Concentrate on building confidence through good modelling and supportive questioning				
6	WK1: Addition and subtraction related and derived facts	SATs problems from past papers Take examples for P1,P2 and P3	Addition and subtraction strategies including algebra and sequences (for part and whole numbers including money and measure)	Properties of shape Angle
	WK2: Multiplication and division related and derived facts		Multiplication and division strategies including algebra (for part and whole numbers including money and measure)	Coordinates and transformations
	WK3: Place value, rounding and estimation Partitioning		Fractions, decimals and percentages including $\times$ and $\div$ by 10, 100 and 1000	Measure: conversions between metric related measures. Equivalence between metric and imperial

### UNIT PLANNING MODEL

Week	Date	Block	Unit	Big ideas, unit objectives, hot and cold tasks with key activities, resources, models and images. (now construct the connected learning journey – link to previous learning)
1	04-09-17	A1	Geometry	
2	11-09-17	A1	Addition and Subtraction	
3	18-09-17	A1	Addition and Subtraction	
4	25-09-17	A1	Statistics and Measure	
5	02-10-17	B1	Measure	
6	09-10-17	B1	Multiplication and Division	
7	16-10-17	B1	Division and Fractions	
Milestone 1				
Half Term				
8	30-10-17	C1	Geometry	
9	06-11-17	C1	Addition and Subtraction	
10	13-11-17	C1	Addition and Subtraction	
11	20-11-17	D1	Statistics and Measure	
12	27-11-17	D1	Fractions	
13	04-12-17	D1	Multiplication and Division	
14	11-12-17	D1	Multiplication and Division	
Christmas Holiday				



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What planning a learning journey looks like!

Identify key tasks ~ plan the journey ~ choose the 'cold task' ~ design the 'hot task'

