

Year 1 medium term plan

Problem Solving End of year expectations:

Problem Solving

- Use mathematics as an integral part of classroom activities, e.g. engage with mathematical activities involving sorting, counting and measuring by direct comparison, begin to understand the relevance of mathematical ideas to everyday situations by using them in role play
- Select the mathematics they use in some classroom activities, e.g. find a starting point or identify key information
- Begin to use heuristics (apparatus, diagrams, role play etc) to represent and clarify a problem
- Move between different representations of a problem, e.g. words diagrams
- Adopt a suggested model or systematic approach to a problem
- Make connections and apply their knowledge to similar situations
- Begin to apply knowledge appropriately to problem-solving

Reasoning and Dialogue

- Represent their work using objects or pictures
- Begin to discuss their work
- Begin to use some mathematical language when discussing their work
- Begin to use their work using symbols and simple diagrams
- Draw simple conclusions from their work
- Explain why an answer is correct
- Predict what comes next in a simple sequence and explain why

Autumn	Spring	Summer
<p>Number and place value:</p> <ul style="list-style-type: none"> • Continue and extend counting skills – counting in ones, forwards and backwards to at least 30, then 50. • Count, read and write numbers to 20 in numerals, then extending to 30 / 50. • Understand what each digit represents in numbers to 20, and represent these numbers with structured resources. • Begin to recognise the significance of “ten” in the number system. • Begin to recognise multiples of ten and count in tens. 	<p>Number and place value:</p> <ul style="list-style-type: none"> • Continue and extend counting skills – counting in ones, forwards and backwards to at least 50, then 100. • Count, read and write numbers to 50 in numerals, then extending to 100. • Understand what each digit represents in two –digit numbers and represent these numbers with structured resources. • Recognise the significance of “ten” in the number system. • Recognise multiples of ten and count in tens, forwards and backwards. 	<p>Number and place value:</p> <ul style="list-style-type: none"> • Continue and extend counting skills – counting in ones, forwards and backwards to 100 and beyond (to or from any given number). • Count, read and write numbers to 100 in numerals.. • Understand what each digit represents in two –digit numbers and represent these numbers with structured resources. • Recognise the significance of “ten” in the number system. • Recognise multiples of ten and count in tens,

<ul style="list-style-type: none"> • Represent and order numbers to 20, knowing “one more” and “one less” than any number to 20. • Begin to write some numbers to 20 in words. <p>Addition and subtraction:</p> <ul style="list-style-type: none"> • Practical addition and subtraction problems within 20 – independent recording. • Partitioning numbers to 10 in different ways. • Begin to use a number line for addition and subtraction – counting all, then counting on for addition and counting back for subtraction. Use practical objects / pictures on a number line. <p>Geometry</p> <ul style="list-style-type: none"> • Children will begin to talk about 2D and 3D shapes in mental, aural and topic-linked activities. <p>Measures</p> <ul style="list-style-type: none"> • Compare lengths and heights (e.g. long/short, longer/shorter, tall/short, double/half) , Mass or weight (e.g. heavy/light, heavier than, lighter than), Capacity/volume (full/empty, more than, less than, quarter), Time (quicker, slower, earlier, later) • Estimating lengths, heights, mass, weights, capacity and time • Check estimates with non-standard measures • Comparing non-standard measures (e.g. the difference between a teacher’s hand span and a doll’s hand span) • Sequence events in chronological order using language such as: before and after, next, first, today, yesterday, tomorrow, morning, afternoon and evening • Recognise and use language relating to dates, 	<ul style="list-style-type: none"> • Count in multiples of 5. • Count in multiples of 2. (odd and even numbers) • Represent and order numbers to 50, knowing “one more” and “one less” than any number to 50. Begin to extend this to 100. • Write some numbers to 20 in words. • Know the number that is ten more / ten less than any two digit number and explain which digit changes and why. <p>Addition and subtraction:</p> <ul style="list-style-type: none"> • Contextual addition and subtraction problems within 30 - begin to use “+”, “-” and “=” symbols with understanding . • Explore number bonds to 20, applying knowledge of number bonds to 10. • Use a number line to support addition and subtraction –counting on for addition and counting back for subtraction. • Know and understand that addition can be done in any order (commutativity) but subtraction cannot. • Use knowledge of number bonds to begin to add some numbers mentally • Begin to add/subtract using jumps of ten and one using a structured number line for support. • Begin to understand the relationship between addition and subtraction, knowing that, for example, if $7 + 3 = 10$, then $3+7 =10$, $10-7=3$ and $10-3=7$ <p>Geometry:</p>	<p>forwards and backwards.</p> <ul style="list-style-type: none"> • Count in multiples of 5. • Count in multiples of 2. • Represent and order numbers to 50, knowing “one more” and “one less” than any number to 50. Begin to extend this to 100 • Compare numbers and quantities, using the language of equal to, more than, less than (fewer), most, least • Read and write some numbers to 20 in words. • Know the number that is ten more / ten less than any two digit number and explain which digit changes and why. <p>Addition and subtraction:</p> <ul style="list-style-type: none"> • Contextual addition and subtraction problems within 30, using “+”, “-” and “=” symbols . • Apply knowledge of number bonds to 10 to number pairs to 20. • Use a number line to support addition and subtraction –counting on for addition and counting back for subtraction. • Know and understand that addition can be done in any order (commutativity) but subtraction cannot. • Use knowledge of number bonds to begin to add some numbers mentally • Begin to add/subtract using jumps of ten and one using a structured number for support. • Understand the relationship between addition and subtraction, knowing that, for example, if $7 + 3 = 10$, then $3+7 =10$, $10-7=3$ and $10-3=7$.
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<p>including days of the week, weeks, months and years</p> <ul style="list-style-type: none"> • Where possible make links to understanding of number and calculation. <p>Fractions</p> <ul style="list-style-type: none"> • Over the Autumn and Spring term, children can continue to develop their understanding of “half” and “halving” though other contexts and through mental and oral activities. <p>Multiplication and division</p> <ul style="list-style-type: none"> • Children’s understanding of multiplication and division must build upon their secure understanding of addition and subtraction, which is a key focus during the Autumn term. They may have practical / oral experience of solving problems involving early ideas of multiplication and division, which will be further developed over the Spring and Summer. 	<ul style="list-style-type: none"> • Recognise 2D and 3D shapes • Name 2D shapes e.g. rectangles (including squares), circles and triangles) • Name 3D shapes (e.g . cuboids, (Including cubes, pyramids and spheres) • Recognise these shapes in different orientations and sizes. • Know that rectangles, triangles, cuboids and pyramids can be different shapes (i.e. irregular). Use mathematical language to describe shapes and their properties e.g vertices, sides, edges, faces. <p>Measures</p> <ul style="list-style-type: none"> • Recognise and know the value of different denominations of coins and notes (1p, 2p, 5p,10p, 20p, 50p, £1, £2, £5, £10, £20) • Where possible make links to understanding of number and calculation. <p>Fractions</p> <ul style="list-style-type: none"> • Over the Autumn and Spring term, children can continue to develop their understanding of “half” and “halving” though other contexts and through mental and oral activities. <p>Multiplication and Division:</p> <ul style="list-style-type: none"> • count in multiples of twos, fives and tens (forwards and backwards) • Explore, make, continue and describe patterns including number patterns • Solve problems involving grouping and sharing small quantities • Begin to record solutions using pictorial representations. • Begin to double quantities of objects 	<ul style="list-style-type: none"> • Represent and use number bonds and related subtraction facts within 20 • Solve one-step problems that involve addition and subtraction, using concrete objects and pictorial representations, and missing number problems such as $7 = ? - 9$. <p>Position and Direction:</p> <ul style="list-style-type: none"> • Describe position, directions and movements. • Use the language of position, direction and motion including left and right, top, middle and bottom, on top of, in front of, above, between, around, near, close, far, up and down, forwards and backwards, inside and outside. • Make half, quarter and three quarter turns in a clockwise direction. <p>Measures</p> <ul style="list-style-type: none"> • Time (hours, minutes, seconds) <p>Measure and begin to record the following:</p> <ul style="list-style-type: none"> • Lengths and heights • Mass/weight • Capacity and volume <p>Where possible make links to understanding of number and calculation.</p> <p>Fractions</p> <ul style="list-style-type: none"> • Recognise and find halves and quarters of shapes and objects • Recognise and find halves and quarters of a
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	<ul style="list-style-type: none"> • Begin to make connections between arrays, number patterns and counting in two's, five's and ten's 	<p>quantity</p> <ul style="list-style-type: none"> • Connect halves and quarters to the equal sharing and grouping of sets through problem solving • Through practical work, begin to use "half" e.g. in measures – "half full" "half empty", "half a metre", "half as big" etc. • Combine different quantities of halves and quarters to make a whole (e.g. $\frac{1}{2}$, $\frac{1}{4}$ and $\frac{1}{4}$ is a whole etc) – using practical resources. • Record halves and quarters as $\frac{1}{2}$ and $\frac{1}{4}$ • Begin to see the connection between fractions and division – e.g. dividing/sharing by 2 means half each. <p>Multiplication and Division:</p> <ul style="list-style-type: none"> • count in multiples of twos, fives and tens (forwards and backwards) • Explore, make, continue and describe patterns including number patterns • Solve problems involving grouping and sharing small quantities • Use doubling as a strategy to solve problems. • Solve one step problems involving multiplication and division by calculating the answer using concrete object and pictorial representations • Begin to understand multiplication as repeated addition, using resources and visual images to support (including arrays)
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