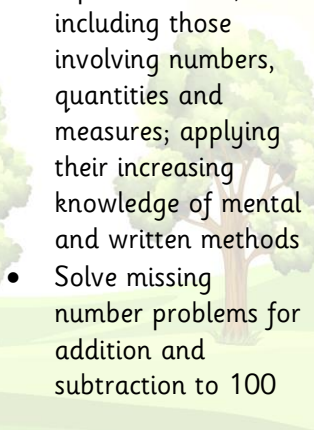


MATHS TREES OF KNOWLEDGE AND SKILLS PROGRESSION

KS1 - CALCULATION

	Year 1			Year 2		
	Autumn Term	Spring Term	Summer Term	Autumn Term	Spring Term	Summer Term
Knowledge	- Know what the symbols $+$, $-$ and $=$ represent - Know and use the language related to addition and subtraction: add, add, plus, more, count on, altogether, subtract, minus, less, take away, left over, count back - Know addition facts for all numbers up to 10 - Know subtraction facts for all numbers up to 10 - Know number bonds to 10 - Know that addition can be done in any order - Know that you need to subtract a smaller number from a larger number	- Revisit knowledge of $+$, $-$ and $=$ symbols - Revisit knowledge of the language related to addition and subtraction: add, add, plus, more, count on, altogether, subtract, minus, less, take away, left over, count back - Know addition facts for all numbers up to 20 - Know subtraction facts for all numbers up to 20 - Know number bonds to 10, then know how to use these to identify bonds to 20 - Know that addition can be done in any order, but it is easier to start with the largest number	- Know that multiplication is repeatedly adding equal groups - Know that division is sharing groups equally - Know what an 'array' is - Know doubles to 10, then to 20 - Know halves to 10, then to 20	- Re-visit knowledge that the addition of two numbers can be done in any order (commutative) and subtraction of one number from another cannot. - Identify fact families, using knowledge of addition and subtraction bonds to 20 - Know that addition can be used to check subtraction calculations and vice versa (inverse operations) - Know bonds to 100 (tens) - Know 10 more and 10 less than a number (within 100)	- Know what the symbols $\times$ and $\div$ symbols represent - Know and use language related to multiplication and division: times, groups of, multiply, divide, share equally - Revisit knowledge of what an 'array' is - Know 2, 5 and 10 times tables by heart - Know that the multiplication of two numbers can be done in any order (commutative) and division of one number by another cannot	- Know by heart number bonds to 10, 20 and 100 (tens) - Know multiplication and division facts for 2s, 5s and 10s by heart

Skills	• Read, write and interpret mathematical statements involving addition (+), subtraction (-) and equals (=) signs • Add together 2 one-digit numbers, including zero • Subtract a one-digit number from a one digit number, including zero • Solve one-step problems that involve addition and subtraction, with numbers to 10, using concrete objects and pictorial representations • Solve missing number problems, such as $7 = ? - 9$, with numerals to 10, by calculating answers using objects and pictorial representations • Compare number sentences, involving	• Revisit reading, writing and interpreting mathematical statements involving addition (+), subtraction (-) and equals (=) signs • Add a one-digit number to a two-digit number, including zero • Subtract a one digit number, including zero, from a two-digit number • Solve one-step problems that involve addition and subtraction, with numbers to 20, using concrete objects and pictorial representations • Solve missing number problems, such as $17 = ? - 2$, with numerals to 20 • Add by counting on, up to 20	• Make equal groups • Add equal groups • Make arrays • Make doubles • Make equal groups – grouping • Make equal groups – sharing • Count in multiples of twos, fives and tens • Solve one step problems involving multiplication and division, by calculating the answer using concrete objects, pictorial representations and arrays, with support	• Check calculations, using inverse operations • Compare number sentences • Identify related facts to 20, then to 50 • Add and subtract in 1s then in 10s • Add by making 10 • Add a 2-digit and 1-digit number – crossing 10 • Subtract a 1-digit number from a 2-digit number – crossing 10. • Add two 2-digit numbers – not crossing, then crossing 10 – add ones and add tens • Subtract a 2-digit number from a 2-digit number – not crossing 10, then crossing 10 - subtract ones and tens • Find and make number bonds	• Recognise, make and add equal groups • Understand and represent multiplication sentences using the $\times$ symbol • Use arrays to solve calculations • Make equal groups – sharing • Make equal groups – grouping. • Know how to divide by 2 • Identify odd and even numbers • Divide by 5 • Divide by 10 • Recall and use multiplication and division facts for the 2, 5 and 10 times tables, including recognising odd and even numbers • Calculate mathematical statements for multiplication and division within the multiplication tables	• Recall all the number bonds to and within 10 and use these to reason with and calculate bonds to and within 20, recognising other associated additive relationships • Recall and use multiplication and division facts for 2, 5 and 10 and make deductions outside known multiplication facts • Use reasoning about numbers and relationships to solve more complex problems and explain their thinking • Solve word problems that involve more than one step
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	addition and subtraction to 10 	• Find and make number bonds – to 10, then to 20 • Add by making 10 (up to 20) • Subtraction – Not crossing 10, then crossing 10 (within 20) • Compare number sentences, involving addition and subtraction to 20 • Identify related facts to 10, then to 20 		• Add three 1-digit numbers • Recall and use addition and subtraction facts to 20 fluently • Derive and use related facts up to 100 • Solve problems with addition and subtraction: using concrete objects and pictorial representations, including those involving numbers, quantities and measures; applying their increasing knowledge of mental and written methods • Solve missing number problems for addition and subtraction to 100 	and write them using the multiplication ($\times$), division ($\div$) and equals ($=$) signs • Solve one-step problems involving multiplication and division, using materials, arrays, repeated addition, mental methods and multiplication and division facts, including problems in contexts. 	
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