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| **Year 2 - Building and assessing the conceptual understanding and learning – Addition and Subtraction** |
| **End of Year Expectations:**Pupils should be taught to: 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 recall and use addition and subtraction facts to 20 fluently, and derive and use related facts up to 100 add and subtract numbers using concrete objects, pictorial representations, and mentally, including: * a two-digit number and ones
* a two-digit number and tens
* two two-digit numbers
* adding three one-digit numbers

show that addition of two numbers can be done in any order (commutative) and subtraction  of one number from another cannot recognise and use the inverse relationship between addition and subtraction and use this to check calculations and missing number problems.  | **Non-statutory guidance:**Pupils extend their understanding of the language of addition and subtraction to include sum and difference. Pupils practise addition and subtraction to 20 to become increasingly fluent in deriving facts such as using 3 + 7 = 10, 10 - 7 = 3 and 7 = 10 - 3 to calculate 30 + 70 = 100, 100 - 70 = 30 and 70 = 100 - 30. They check their calculations, including by adding to check subtraction and adding numbers in a different order to check addition (e.g. 5 + 2 + 1 = 1 + 5 + 2 = 1 + 2 + 5). This establishes commutativity and associativity of addition. Recording addition and subtraction in columns supports place value and prepares for formal written methods with larger numbers. **See NCETM “Teaching for Mastery” Year 2 book – add / subtract. https://www.ncetm.org.uk/public/files/23305579/Mastery\_Assessment\_Y2\_Low\_Res.pdf**  |
| **Autumn** | **Spring** | **Summer** |
| * Solve problems with addition and subtraction
* use a number line to support mental strategies for addition – jumping in steps of ten and one.
* Use knowledge of number pairs and partitioning to bridge through tens numbers when adding / subtracting
* Use and apply known and quickly recalled facts to solve addition and subtraction problems
* Practice recalling and using addition facts to ten / twenty
* Use practical resources (counting apparatus / diennes) to model addition / subtraction.
* Explore the relationship between addition and subtraction – begin to use the inverse operation as a checking strategy.
* Begin to use known addition and subtraction facts to 20 to generate new known facts to 100.
 | * Add/subtract multiples of ten mentally by applying knowledge of addition and subtraction facts to 10 / 20.
* Continue to refine addition and subtraction strategies, using mental skills and strategies (see progression in calculation document)
* Confidently use a number line to add and subtract two digit numbers, using jumps of ten and one or multiples of ten and one, and bridging through ten.
* Practise addition and subtraction skills in a range of contexts, problems and investigations.
* Continue to use the inverse operation as a checking strategy
 | * Solve a range of addition and subtraction problems, choosing a suitable strategy based on the numbers involved (mental methods, number line jottings)
* Confidently apply known and quickly recalled facts to addition and subtraction calculations
* Add and subtract numbers using concrete objects, pictorial representations and mental methods, including a two-digit number and ones, a two digit number and tens, two two-digit numbers and adding three one-digit numbers.
* Show that addition of two numbers can be done in any order (commutative) and subtraction of one number from another cannot.
* Confidently solve problems using addition and subtraction.
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| **Key questions:*** Can I solve addition problems, using a suitable strategy for the numbers involved, explaining my choice of strategy and what I have done?
* Can I solve subtraction problems, using a suitable strategy for the numbers involved, explaining my choice of strategy and what I have done?
* When I need to use a number line jotting for addition, can I confidently use jumps of ten and one?
* When I need to use a number line jotting for subtraction, can I confidently use jumps of ten and one?
* When adding, can I use quick recall of number facts to bridge through ten?
* When subtracting,, can I use quick recall of number facts to bridge through ten?
* Can I use some mental skills and strategies to help me calculate efficiently (e.g. using known facts, doubling, using near doubles etc)?
* Can I demonstrate and talk about what I am doing when I calculate, using resources – e.g. diennes, numicon, bundles of straws etc?
* Can I explain the relationship between addition and subtraction, using the inverse operation as a checking strategy where it would be helpful?
* Am I beginning to apply known facts to larger numbers – e.g if I know that 7 + 3 = 10, then I also know that 70 + 30 = 100?
 | **Key questions:*** Can I apply my knowledge of known facts to add/subtract multiples of ten to a 2-digit number?
* Can I confidently add one and two digit numbers in a range of contexts, using appropriate mental skills and strategies for the numbers involved (supported if necessary with a number line jotting)?
* Can I confidently use a number line jotting when I need to, using jumps of multiple of ten and one, and bridging through tens numbers?
* Can I use the inverse operation as a checking strategy, when it is helpful?
* When solving problems or carrying out investigations, can I decide which operation to use and apply appropriate strategies with confidence?

 | **Key questions:*** In a range of contexts and problems, can I confidently add and subtract numbers using concrete objects, pictorial representations and mental methods, including a two-digit number and ones, a two digit number and tens, two two-digit numbers and adding three one-digit numbers (in line with the school’s calculation policy?)
* Can I show, through my explanations, that addition can be done in any order (commutativity) and subtraction of one number from another cannot?
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