This document should be used alongside the Hampshire Mathematics Planning Tool for mathematics. The concepts, knowledge and skills within National Curriculum Strand have NOT been listed in order. They are there to support bespoke planning to meet the needs of individual pupils. An individual plan would be made up from an appropriate number of different National Curriculum strands depending on the needs of the pupil. It might be appropriate to use some elements from the Year 1 and or Year 3 planning tool when developing an individual bespoke plan.

|  |  |  |
| --- | --- | --- |
| **Year 2: Number and Place Value**  **Review (Date)** | | |
| **National Curriculum strands**  **(NCETM progression document)** | **Concepts, knowledge and skills (select)** | **Year 2 National Curriculum expectations** |
| Counting   * Oral counting forwards * Oral counting backwards * Number sequences (inc odd/even) * Estimating and counting a set of objects | *Can say the number sequence from 1-100*  *Can say the number sequence from 100-1*  *Within the range 1- 100 can count forwards from a given number to another given number*  *Within the range 100-1 can count backwards from a given number to another given number*  *Can say the number after a given number in the range 1-100 without dropping back to 1*  *Can say the number before a given number in the range 1-100 without counting up through all numbers first*  *Recognises patterns in the number sequences from 1-20 (1-100) and uses this to say them/ self-correct*  *Can find 10 more than any given number (0-100)*  *Can count accurately up to 100 objects*  *Can find 10 less than any 2 digit number (0-100)*  *Can count in multiples of 2, 5, 10 and 3 to the fifth multiple ( 10th multiple)*  *Uses step counting to count larger groups of objects inc coins in context of money (2p; 10p; 5p)* | count in steps of 2, 3, and 5 from 0, and in tens from any number, forward or backward |
| Comparing numbers   * Symbol order * Number line model * Cardinality * ordinality | Can use a structured (then empty) number line to compare position of two numbers0-50; ( 0-100)  Can use language of ‘more/ less’ to describe two sets of objects with links to > < signs  Can use structured resources eg numicon to compare numbers 1-30+ (1-50; 1-100)  Can use language of ordinality up to twentieth  Can say whether two numbers are close together or far apart (through oral counting or number line model)  Can order numbers 1-30 (1-50; 1-100)  Can use a structured (empty) number line to compare position of two numbers (0-100) related to multiples of 10 | compare and order numbers from 0 up to 100; use <, > and = signs |
| Identifying, Representing and Estimating Numbers   * counting objects * tens arrays * number lines | *Makes a reasonable estimate up to 50 (100) using counting objects*  *Can mark numbers on structured number lines (1-100) showing awareness of position of multiples of 10*  *Can fluently systematically subitise small numbers in all different ways 3-7 (8-10; 11-20) and record using + and = signs*  *Can use tens arrays, dienes and numicon to represent same number in different ways and compare different numbers using two tens frames and other structured resources inc place value cards* | identify, represent and estimate numbers using different representations, including the number line |
| Reading and Writing Numbers  (including Roman Numerals) | *Can read all numbers to 100 not confusing PV ie 31/13*  *Can write all number words to 100 ( multiples of 10 from twenty)* | read and write numbers to at least 100 in numerals and in words |
| Understanding Place Value   * cardinality * ordinality * number line imagery * vocabulary: ‘teen’ and ‘ty’ | *Can use ‘teen’ and ‘ty’ vocabulary accurately eg 14, 40*  *Can confidently find 2 digit numbers to 50 (100) on a structured number line relative to multiples of 10*  *Can draw an empty number line and mark where 2 digit numbers would be and explain the position compared to multiples of 10. Understands the significance of the order of digits ie 14 and 41 are in different positions on a number line related to cardinal value ( tens and ones) and ordinal value ( 14 = 10 and 4 more; 41= 40 and 1 more)*  *Can continually ‘add 10’ to any units number recognising the oral counting pattern eg 7,17,27,37 using structured resources eg numicon, dienes, place value cards and number lines to model the numbers and pattern*  *Can make 2 digit numbers using dienes understanding 10s and units. Match with PV cards 50 (100)*  *Can use a range of structured resources eg straws, bead strings, place value cards, Numicon to demonstrate 1-50 (51-100)*  *Can continually ‘subtract 10’ from a 2 digit number recognising the oral counting pattern eg 37,27,17,7 using structured resources eg numicon, dienes, place value cards and number lines to model the numbers and pattern* | recognise the place value of each digit in a two-digit number ( tens, ones) |
| Problem Solving | Research evidence suggests that developing concepts and skills in understanding number and calculation (eg number facts) through problem solving is more effective than working with ‘number’ only as an abstract concept.  **Example of types of problems used:** | use place value and number facts to solve problems |

|  |  |  |
| --- | --- | --- |
| **Year 2: Addition and subtraction**  **Review: (Date)** | | |
| **National Curriculum strands**  **NCETM progression Doc.** | **Concepts, knowledge and skills (select)** | **Year 2 National Curriculum expectations** |
| Number Bonds   * Subitising * Deriving and recalling addition and subtraction facts * Knowing doubles and corresponding halves | *Can fluently subitise small numbers in different ways 3,4,5,6,7,8,9 and 10) using counting objects and structured resources eg numicon*  *Can record all the different partitions of numbers (3-10) using + and = signs*  *Can use bar models and 2 part diagrams to show partitions of all units numbers (10; 11-20)*  *Understands X +1 can be interpreted as ‘next number’ and ‘1 more’ without the need to count all. (0-100)*  *Can use bar models and 2 part diagrams to show partitions of all units numbers (10; 11-20) identifying the related subtraction fact with each addition fact*  *Understands X -1 can be interpreted as ‘number before’ and ‘1 less’ without the need to take away and then count all. (0-100)*  *Understands multiple of 10 subtract multiple of 10= units digit and can use structured resources to explain eg numicon, place value cards 34-30=4*  *Understands X +U where X=10 (or multiple of 10) can be calculated using PV without the need to count all.*  *Understands the pattern linking number bonds to 10 with number bonds to 20 (addition) and 100*  *Can show using resources and on a bar model doubles of all numbers to 20*  *Understands the pattern linking number bonds to 10 with number bonds to 20 ( addition and subtraction) and 100*  *Can show using resources and on a bar model halves of all numbers to 20*  *Can use structured resources to show addition facts of all one digit numbers (to 10; 11-20)* | recall and use addition and subtraction facts to 20 fluently, and derive and use related facts up to 100 |
| Mental calculation   * Using facts to estimate and check answers | *Use recall of number bonds to 20 to check solutions (addition)*  *Group calculations into solutions > < then = to 10/ 20/50/100*  *Use recall of number bonds to 20 to check solutions (subtraction)*  *Uses inverse to solve missing box calculations*  *Use known fact to solve related fact eg if 3+4= 7 then 3+5 must be 8; if 30+40=70 then 30+50 must be 80*  *Identify calculations that can be worked out easily with PV counting forwards/ backwards ie +/10+/20+/+30*  *show that addition of two numbers can be done in any order (commutative) and subtraction of one number from another cannot number bonds to 10 (20)*  *Recognise and use rounding to nearest multiple of 10 eg +9, +19, +29 as 10-1; 20-1, 30-1 etc* | 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 |
| Written methods   * Say, do and write when calculating * Use symbols +/-/= * Inverse * Commutativity * Relate calculations to problem context | *Use concrete resources to model and record addition and subtraction calculations (TU+/-U; TU+/- TU) using +/- and = signs*  *Explain and use concrete resources to model commutativity with addition*  *Explain using concrete resources that subtraction is not commutative eg 90-60/ 60-90*  *Use diagrams eg bar models and concrete resources to explain inverse (TU+/-TU)*  *Identify addition number sentence to solve a simple word problem 0-100 inc context of money*  *Use unstructured number lines to show addition and subtraction calculations (TU+/-U; TU+/-TU)*  *Use structured number lines to show addition calculations (TU+U) bridging through 10*  *Use structured number lines to show addition calculations (TU-U) bridging through 10*  *Identify subtraction number sentence to solve a simple word problem 0-100 inc context of money* |
| Inverse operations, estimating and checking answer   * Using related facts * Part/whole model * Using bar models | *Use bar models to explain using correct vocabulary how an addition fact links to a subtraction fact (bonds to 20; 100) eg*  *23+7= 30 so 30-23=7 and 30-7=23*  *Solve missing box calculations using bar model diagrams to support reasoning about calculation as ‘part/whole’ model* | recognise and use the inverse relationship between addition and subtraction and use this to check calculations and solve missing number problems. |
| 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 |
| Problem solving | *Identify number sentence needed and show solution on a number line*  *Identify number sentence needed and show solution on a unstructured number line and a bar model*  *Use bar models to solve missing box calculations eg 26+?=30; 39= 41-?*  *Use bar models to find all possibilities eg 8= ?+?*  **Example of types of problems used:** | *solve simple problems in a practical context involving addition and subtraction of money of the same unit, including giving change (copied from Measurement)* |

|  |  |  |
| --- | --- | --- |
| **Year 2: Multiplication and Division**  **Review: (Date)** | | |
| **National Curriculum strands**  **NCETM Progression Document** | **Concepts, knowledge and skills (select)** | **Year 2 National Curriculum expectations** |
| Multiplication and Division Facts   * Counting in steps forwards/backwards * Vocabulary of: ‘groups of’ * Using arrays * Using number lines * Using bar models | *Can use counting objects to put into groups of 2 (10, 5, 3).*  *Can organise a multiple of two (10, 5, 3) into an array using counters/ objects with adult support*  *Can identify how many groups of 2 (10,5, 3) there are in a collection of objects*  *Can organise groups of objects on a number line 2s (3,5,10s) and mark each mutliple*  *Can relate doubles of a number to 2x using a bar model*  *Recall fluently multiples of 2s to 20 and understand why these are all even products*  *Recall fluently multiples of 5s to 50*  *Recall fluently multiples of 10s to 100*  *Can count in 2s to 10*  *Can count in 2s to 20*  *Can count in 10s (5s) to 50*  *Can count in 10s to 100*  *Can count in 3s to 30*  *Can describe an array in two ways: eg 4x2 and 2x4*  *Can relate half a number to X÷ 2 using a bar model*  *Recall division facts for each multiplication fact 2x (10x, 5x)*  *Explain and show how pairs of multiplication facts relate eg 2x5/ 2x10;* | *count in steps of 2, 3, and 5 from 0, and in tens from any number, forward or backward*  (copied from Number and Place Value) |
| recall and use multiplication and division facts for the 2, 5 and 10 multiplication tables, including recognising odd and even numbers |
| Mental Calculations   * Recall of facts X * Recall of facts ÷ * Deriving facts | *Recall most facts for 2x (10x,5x) without recourse to using fingers to keep track of step counting. Explain how multiplication of two numbers can be done in any order 2x6/ 6x2*  *Recall both division facts related to a multiplication fact 2x (10x,5x). Explain how the order of numbers in a division fact matters ie 6 ÷ 2 not equal to 2 ÷ 6* | show that multiplication of two numbers can be done in any order (commutative) and division of one number by another cannot |
| Written Calculations   * Pictorial recording * Using signs and symbols | *Can talk about and draw pictures to show groups of objects 2s/ pairs (10s, 5s, 3s)*  *Can show repeated groups of 2 (10, 5, 3) on a structured number line*  *Can draw an array to show multiples of 2 (10, 5, 3 )*  *Can show counting back in 2s (10s, 5s, 3s) on a structured number line*  *Can use the vocabulary and symbols to describe and record multiplication number sentences x2 (x10, x5)*  *Can read and interpret the symbols X and = to solve multiplication number sentences*  *Can read and interpret the symbols ÷ and = to solve division number sentences* | calculate mathematical statements for multiplication and division within the multiplication tables and write them using the multiplication (×), division (÷) and equals (=) signs |
| Inverse operations, estimating and checking answers | *Can use repeated addition 2s (10s, 5s, 3s) to solve simple multiplication problems*  *Can use repeated subtraction in 2s (10s, 5s, 3s) to solve simple grouping problems* | *No statement* |
| Problem solving | **Example of types of problems used:** | solve problems involving multiplication and division, using materials, arrays, repeated addition, mental methods, and multiplication and division facts, including problems in contexts |

|  |  |  |
| --- | --- | --- |
| **Year 2: Fractions**  **Review: (Date)** | | |
| **National Curriculum strands** | **Concepts, knowledge and skills (select)** | **Year 2 National Curriculum expectations** |
| Counting in Fractional Steps   * Number line | *Can record counting in 1/2s on a number line*  *Can use 3d objects to recombine 1/2s, 1/4s and 1/3s to make whole objects*  *Can record counting in 1/4s on a number line and notice 2/4= ½; 4/4=1; 8/4=2*  *Can work out how many wholes from specified number of equal parts eg 6/3 = 3 whole units*  *Can record counting in 1/3s on a number line* | *Pupils should count in fractions up to 10, starting from any number and using the1/2 and 2/4 equivalence on the number line (Non Statutory Guidance)* |
| Recognising Fractions ( 1/3; 2/4; ¾)  (halves and quarters see Year 1)   * Shape * Number * Time * Length * Capacity and volume | Can use objects and explain that sharing a set of objects equally between three results in three groups of equal size each called a third  Can show that sharing odd numbers of objects between two results in one left over  Can show that a quarter of a set of objects results in 4 groups of equal size  Draws pictures and uses diagrams to show halves (quarters and thirds) inc bar models  Knows that any one of a group of 4 equal groups is a quarter, that 2/4s is equal to a half and ¾ is ¼ less than a whole or 3 lots of 1/4  Understands the difference between sharing between 4 (3) and equal sharing between 4 (3)  Can show 1/4s of shapes by folding accurately in half and half again and can label ¼; 2/4 ( and know is equal to half) and ¾  Can recognise when a part is not a half (quarter, third) in number and shape and explain why  Can recognise a quarter of an hour as a quarter or half of a half on a clock face linked to ‘quarter past the hour’  Can show quarters of shapes by folding in half and half again accurately and label each part as a quarter. Identify different possible quarters  Recognises quarters ( thirds) and not quarters (thirds) in length  Can place half, (quarter and third) on a number line  Recognise and use vocabulary of less than/ more than quarter, half full = 2 quarters  Can use a bar model to show half of numbers (quarter, third) of numbers  Recognise and combine thirds of single objects to find the number of whole objects  Recognise and combine quarters of objects to find the number of whole objects  Find halves ( quarters; thirds) of a range of incongruent shapes  Count in quarters using objects to support | recognise, find, name and write fractions 1/3, 1/4, 2/4 and 3/4 of a length, shape, set of objects or quantity |
| Equivalence   * Bar model * Array * Number and Shape | Can show 1/4s of shapes by folding accurately in half and half again and can label ¼; 2/4 ( and know is equal to half) and ¾ ( as above)  For a variety of shapes can divide into quarters and shade in one half of the whole shape  Makes links between halving and 2x multiplication facts (dividing by 4 and ¼ of; dividing by 3 and 1/3 of)  Knows half of a number is equal to 2/4 of the same number | write simple fractions e.g. 1/2 of 6 = 3 and recognise the equivalence of 2/4 and 1/2. |
| Problem solving | **Examples of types of problems used** | No statement |