Year Two: Mental Methods

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Using place value

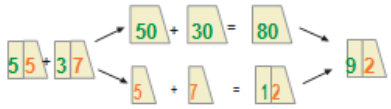
Know 1 more or 10 more than any number

e.g. *1 more than 67*

e.g. *10 more than 85*

Partitioning

e.g. *55 + 37 as 50 + 30 and 5 + 7, then finally combine the two totals: 80 + 12*



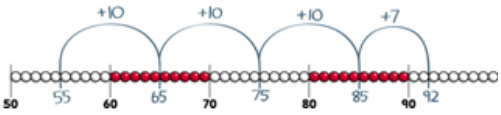
Counting on

Add 10 and multiples of 10 to a given 1- or 2-digit number

e.g. *76 + 20 as 76, 86, 96 or in one hop: 76 + 20 = 96*

Add two 2-digit numbers by counting on in 10s, then in 1s

e.g. *55 + 37 as 55 + 30 (85) + 7 = 92*



Add near multiples of 10

e.g. *46 + 19*

e.g. *63 + 21*

Using number facts

Know pairs of numbers which make the numbers up to and including 12

e.g. *8 = 4 + 4, 3 + 5, 2 + 6, 1 + 7, 0 + 8*

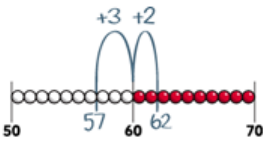
e.g. *10 = 5 + 5, 4 + 6, 3 + 7, 2 + 8, 1 + 9, 0 + 10*

Use patterns based on known facts when adding

e.g. *6 + 3 = 9, so we know 36 + 3 = 39, 66 + 3 = 69, 56 + 3 = 59*

Bridging 10

e.g. *57 + 5 = 57 + 3 (60) + 2 = 62*



Add three or more 1-digit numbers, spotting bonds to 10 or doubles

e.g. *3 + 5 + 3 = 6 + 5 = 11*

e.g. *8 + 2 + 4 = 10 + 4 = 14*

- Number bonds – know all the pairs of numbers which make all the numbers to 12, and pairs with a total of 20
- Count on in 1s and 10s from any given 2-digit number
- Add two or three 1-digit numbers
- Add a 1-digit number to any 2-digit number using number facts, including bridging multiples of 10
- e.g. *45 + 4*
  e.g. *38 + 7*
  Add 10 and small multiples of 10 to any given
- 2-digit number
  Add any pair of 2-digit numbers

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Using place value

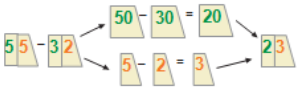
Know 1 less or 10 less than any number

e.g. *1 less than 74*

e.g. *10 less than 82*

Partitioning

e.g. *55 – 32 as 50 – 30 and 5 – 2 and combine the answers: 20 + 3*



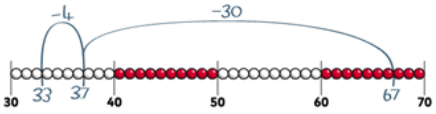
Taking away

Subtract 10 and multiples of 10

e.g. *76 – 20 as 76, 66, 56 or in one hop: 76 – 20 = 56*

Subtract two 2-digit numbers by counting back in 10s, then in 1s

e.g. *67 – 34 as 67 subtract 30 (37) then count back 4 (33)*



Subtract near multiples of 10

e.g. *74 – 21*

e.g. *57 – 19*

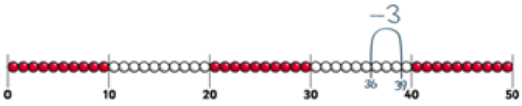
Using number facts

Know pairs of numbers which make the numbers up to and including 12 and derive related subtraction facts

e.g. *10 – 6 = 4, 8 – 3 = 5, 5 – 2 = 3*

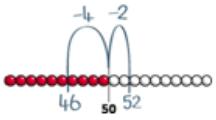
Subtract using patterns of known facts

e.g. *9 – 3 = 6, so we know 39 – 3 = 36, 69 – 3 = 66, 89 – 3 = 86*



Bridging 10

e.g. *52 – 6 as 52 – 2 (50) – 4 = 46*

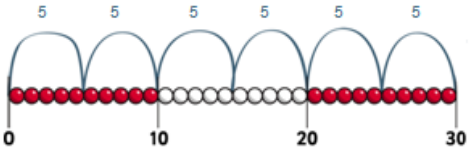
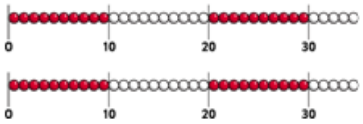
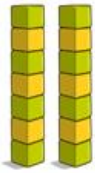
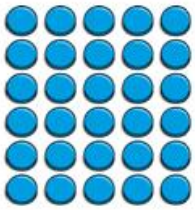
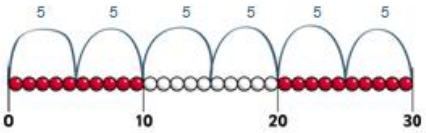
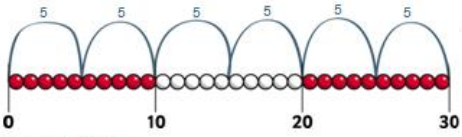
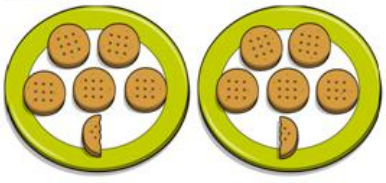
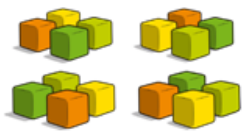
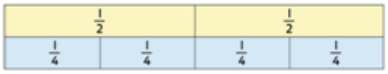


Counting up

Find a difference between two numbers on a line where the numbers are close together

e.g. *51 – 47*

- Number bonds – know all the pairs of numbers which make all the numbers to 12
- Count back in 1s and 10s from any given 2-digit number
- Subtract a 1-digit number from any 2-digit number using number facts, including bridging multiples of 10
- e.g. *56 – 3*
  e.g. *53 – 5*
- Subtract 10 and small multiples of 10 from any given 2-digit number
- Subtract any pair of 2-digit numbers by counting back in 10s and 1s or by counting up

x	**Counting in steps ('clever' counting)** Count in 2s, 5s and 10s   Begin to count in 3s **Doubling and halving** Begin to know doubles of multiples of 5 to 100 e.g. *double 35 is 70*  Begin to double 2-digit numbers less than 50 with 1s digits of 1, 2, 3, 4 or 5 **Using number facts** Know doubles to double 20 e.g. *double 7 is 14*  Start learning ×2, ×5, ×10 tables, relating these to 'clever' counting in 2s, 5s, and 10s e.g. *5 × 10 = 50, and five steps in the 10s count = 10, 20, 30, 40, 50*  **Grouping** Use arrays to find answers to multiplication and relate to 'clever' counting e.g. *3 × 4 as three lots of four things* e.g. *6 × 5 as six steps in the 5s count as well as six lots of five*   Understand that 5 × 3 can be worked out as three 5s or five 3s	• Count in 2s, 5s and 10s • Begin to count in 3s • Begin to understand that multiplication is repeated addition and to use arrays e.g. *3 × 4 is three rows of 4 dots* • Begin to learn the ×2, ×3, ×5 and ×10 tables, seeing these as 'lots of' e.g. *5 lots of 2, 6 lots of 2, 7 lots of 2* • Double numbers up to 20 • Begin to double multiples of 5 to 100 • Begin to double 2-digit numbers less than 50 with 1s digits of 1, 2, 3, 4 or 5
÷	**Counting in steps ('clever' counting)** Count in 2s, 5s and 10s   Begin to count in 3s **Doubling and halving** Find half of numbers up to 40, including realising that half of an odd number gives a remainder of 1 or an answer containing a 1/2 e.g. *1/2 of 11 = 5 1/2*  Begin to know half of multiples of 10 to 100 e.g. *half of 70 is 35* **Grouping** Relate division to multiplication by using arrays or towers of cubes to find answers to division e.g. *'How many towers of five cubes can I make from twenty cubes?' as _ × 5 = 20 and also as 20 ÷ 5 = _*  Relate division to 'clever' counting and hence to multiplication e.g. *'How many fives do I count to get to twenty?'* **Sharing** Begin to find half or a quarter of a quantity using sharing e.g. *find a quarter of 16 cubes by sorting the cubes into four piles*  Find 1/4, 1/2, 3/4 of small quantities  **Using number facts** Know half of even numbers to 24 Know ×2, ×5 and ×10 division facts Begin to know ×3 division facts	• Begin to count in 2s, 5s and 10s • Find half of even numbers to 12 and know it is hard to halve odd numbers • Find half of even numbers by sharing • Begin to use visual and concrete arrays or 'sets of' to find how many sets of a small number make a larger number