TEACHING MENTAL STRATEGIES -

LEEK EDUCATION PARTNERSHIP

There are many strategies which could be taught however it was felt that many children found themselves with more strategies than they were able to master. These are taken from teaching children to calculate mentally we will need to examine them in light of the new expectations of NC 2014.

YEAR 1

count on or back in ones;
– reorder numbers in a calculation;
– begin to bridge through 10, and later 20, when adding a single-digit number;
– use known number facts and place value to add or subtract pairs of single-digit numbers;
– add 9 to single-digit numbers by adding 10 then subtracting 1;
– use patterns of similar calculations.

YEAR 2

– count on or back in tens or ones;
– find a small difference by counting up from the smaller to the larger number;
– reorder numbers in a calculation;
– add three small numbers by find a pair totalling 10;
– partition additions into tens and units then recombine; 36 + 24 is 36 + 20 + 4
adding by breaking a number into its parts and adding over the ten eg. 25 + 7 is 25 + 5 + 2
– bridge through 10 or 20;
– use known number facts and place value to add or subtract pairs of numbers;
– add 9, 19, 11 or 21 by rounding and compensating
– use patterns of similar calculations;
– use the relationship between addition and subtraction;
– use knowledge of number facts and place value to multiply or divide by 2, 5 or 10;
– use doubles and halves and halving as the inverse of doubling.

YEAR 3

– count on or back in tens or ones;
– find a small difference by counting up from the smaller to the larger number;
add small numbers by finding pairs totalling 10
– bridge through a multiple of 10, then adjust; 38 + 7 = 38 + 2 + 5
– use knowledge of number facts and place value to add or subtract pairs of numbers;
– use patterns of similar calculations;
– say or write a subtraction statement corresponding to a given addition statement;
– to multiply a number by 10/100, shift its digits one/two places to the left (the decimal point doesn't move)
– use knowledge of number facts and place value to multiply or divide by 2, 5, 10, 100;
– use doubling or halving;
– say or write a division statement corresponding to a given multiplication statement.

YEAR 4

– count on or back in repeated steps of 1, 10 and 100;
– count up through the next multiple of 10, 100 or 1000; 47, 57, 67…
– add 3 or 4 small numbers, finding pairs totalling 10;
– bridge through 100;
– use knowledge of number facts and place value to add or subtract any pair of two-digit numbers;

– continue to use the relationship between addition and subtraction;
– double any two-digit number by partitioning, doubling and recombining
– use known number facts and place value to multiply or divide, including multiplying and dividing by 10 and then 100;
– partition to carry out multiplication;
– use doubling or halving;
– use closely related facts to carry out multiplication and division
– use the relationship between multiplication and division.

YEAR 5
– count up through the next multiple of 10, 100 or 1000;
– use known number facts and place value to add or subtract
– add several numbers;
– develop further the relationship between addition and subtraction
– use factors;
– partition to carry out multiplication;
– use doubling and halving;
– use closely related facts to carry out multiplication and division eg. 12 x 4 = 48 so 12 x 8 = 96
– use the relationship between multiplication and division;
– use knowledge of number facts and place value to multiply or divide

YEAR 6
– consolidate all strategies from previous years;
– use knowledge of number facts and place value to add or subtract
– add or subtract the nearest multiple of 10, 100 or 1000, and adjust eg 73 - 8 = 73 - 3 - 5
– use factors;
– partition to carry out multiplication;
– use doubling and halving;
– use closely related facts to carry out multiplication and division
– use the relationship between multiplication and division;
– use knowledge of number facts and place value to multiply or divide