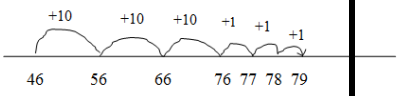
Rubric for identifying counting and addition/subtraction strategies

Observe students during activity, tally or tick in the strategy box as you see it being used.

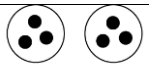
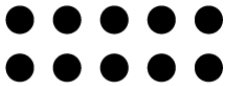
Class name: Observer: Date:

Counts on using ones	**Bridging to the decade**	**Friends of and to ten**	**Using doubles**
Student counts on by ones for numbers of any size (including two-digit numbers) will use fingers or draw fence posts	Students bridge to ten by breaking up the second number e.g. 17 + 5; 17 and 3 is 20 then add two more makes 22	Students combine numbers that add to 10 e.g. 4 + 7 + 8 + 6 + 3 + 1; group 4 and 6, 7 and 3 first This can include friends of 6, 7, 8 and 9 as well.	Students use known facts like doubles and near doubles e.g. 5 + 6; double 5 then add one more
Counting on	**Counting back**	**Using number facts**	**Jump strategy**
Students count on from the larger number to find the total of two numbers e.g. 14 + 7, "I started with 14 and then count on seven more" 14, 15, 16, 17, 18, 19, 20, 21	Students count back from a number to find the number remaining e.g. 17 - ___ = 14 "I started with 17 then counted back 16, 15, 14 and I got 3"	Students use related addition and subtraction number facts to at least 20 e.g. 15 + 3 =18; so 18 – 15 = 3 these are called 'Turn Around Facts'	Students place the first number on an empty number line and then counts forward or backwards firstly by tens and then by ones to perform a calculation 
Split Strategy	**Compensation strategy**	**Using patterns to extend number facts**	**Bridging the decades**
Students separate the tens from the units and add or subtract each separately before combining to obtain the final answer e.g. 46 + 33 = 40 + 6 + 30 + 3 = 40 + 30 + 6 + 3 = 70 + 9 = 79	Students 'round up' a number that is close to the decade to make the calculation simpler. e.g. 63 + 29; 63 + 30 is 93, subtract 1, to obtain 92	Students see the similarity between calculations of smaller and larger numbers, using an easier sum as a starting place for finding a solution. e.g. 5 – 2 = 3, so 500 – 200 is 300	This strategy is similar to using a split strategy, instead of splitting both numbers, students keep one number whole and bridge to the decade first. e.g. 34 + 26; 34 + 6 = 40, 40 + 20 = 60 It is a reversal of jump but is only used when the 'ones' add to a ten
Forming multiples	**Formal algorithm**	**Partitioning numbers**	**Inverse operations**
Student change the order of addends (numbers) to form multiples of ten or other decades. e.g. 16 + 8 + 4; add 16 and 4 first	Students use a formal algorithm to record their calculations. e.g. 134 + 568	Students can expand numbers into standard and non-standard forms to make addition or subtraction easier. e.g. 500 + 670: 670= 500 + 170, so 500 + 670= 500+ 500 (or 2 x 500) = 1000+ 170= 1170	Students check solutions by using inverse operations. e.g. 50- 27= 23, so, 23+ 27 = 50

Rubric for identifying multiplication and division strategies

Observe students during activity, tally or tick in the strategy box as you see it being used.

Class name: Observer: Date:

Model equal groups	**Perceptual counting and sharing**	**Rhythmic counting**	**Skip counting**
 'two groups of three'	Uses visual markers to represent items and groups	1, 2, **3**, 4, 5, **6**, 7, 8, **9**…	3, 6, 9, 12… May need visible items
Forms arrays of equal rows	**Figurative- multiple count**	**Uses repeated addition for multiplication**	**Uses repeated subtraction for division**
	Uses visual markers to represent groups **5** **5** **5** 1 2 3 3 x 5 = 15	5 groups of 4 is the same as 4+4+4+4+4 Or For 3 x 4 3 + 3 is 6, 6 + 3 is 9, 9 + 3 is 12	25 ÷ 5 = 25- 5= 20 (one) - 5 = 15 (two) - 5 = 10 (three) -5 = 5 (four) -5 = 0 (five)
Uses a double count to coordinate composite units	**Uses doubling and repeated doubling**	**Uses halving and repeated halving for 2, 4 and 8**	**Uses inverse operations**
Counts by the number in each group while counting the number of groups e.g. "How many three in 18?" 3 is 1, 6 is 2, 9 is 3…18 is 6	7 x 8 is double 7 (14), double again (28) then double again (56)	36÷ 4:halve 36 (gives 18) then halve again (equals 9)	25 ÷ 5 is the same as 5 x ? = 25 so the answer is 5
Uses known facts to work out unknown	**Uses relationships between facts**	**Uses place value concepts**	**Factorises the multiple of 10**
5 x 7 = 35 so 6 x 7 is 7 more than 35	Multiples for 6 are double the facts for 3	3 x 20 is the same as 3 x 2 tens = 6 tens= 60	3 x 20 is the same as 3 x 2 x 10= 6 x 10= 60
Model commutative property	**Multiplying the tens then the units**	**Model and apply associative property**	**Factorising the larger number**
3 groups of 2 is the same as 2 groups of 3	7 x 19 is the same as 7 tens plus 7 nines is 70+ 63= 133	2 x 3 x 5= 2 x 5 x 3= 10 x 3= 30	18 x 5= 9 x 2 x 5= 9 x 10= 90
Uses an area model	**Uses a formal algorithm** (Stage 3 M&D 1)	**Uses extended form (long multiplication)** (Stage 3 M&D 1)	**Uses estimation** (Stage 3 M&D 1)
Solving 27 x 8 20 7 8 | 160 | 56 160+56=216	432 x 5 2160	521 x 22 1042 10420 11462	32 x 253 will be about, but more than 30 x 250
Recognises grouping symbols (Stage 3 M&D 2)	**Applies order of operations (Stage 3 M&D 2)**		
5 + (2 x 3) = 5 + 6 = 11	32 ÷ (2 x 4) = 32 ÷ 8= 4 (grouping symbols first)		