WILDRIDINGS CALCULATION POLICY

Addition & Subtraction
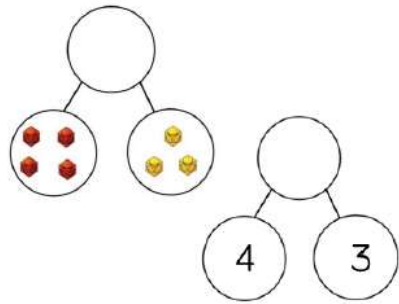
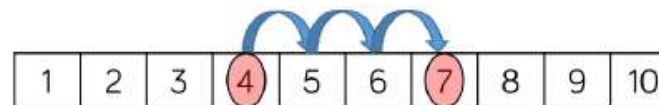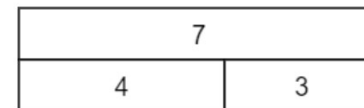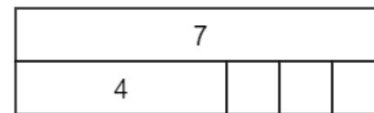# ADDITION

Skill: Add 1-digit numbers within 10

Year: 1

4 + 3 = 7

	7		
4			

	7	
4	3	

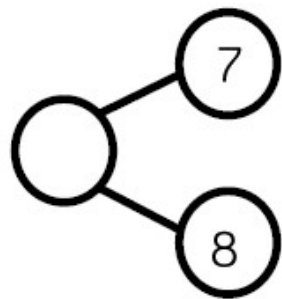| 1 | 2 | 3 | 4 | 5 | 6 | 7 | 8 | 9 | 10 |
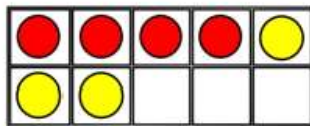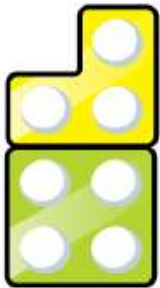
- When adding numbers to 10 children can explore both aggregation and augmentation

- The part-whole model, bar model, numicon and ten frame support aggregation

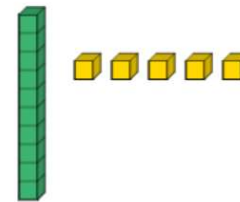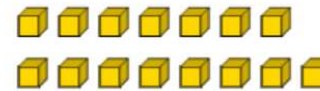- The bar model, ten frame and number track all support augmentation

![Wildridings Primary School logo]	Skill: Add 1 and 2-digit numbers to 20	Year: 1/2

15	
8	7

$$8 + 7 = 15$$

$8 + 7 = 15$

2   5

$+2$ $+5$

0 1 2 3 4 5 6 7 8 9 10 11 12 13 14 15 16 17 18 19 20
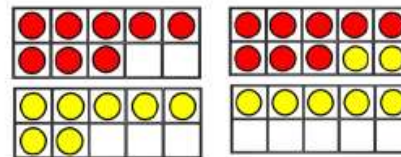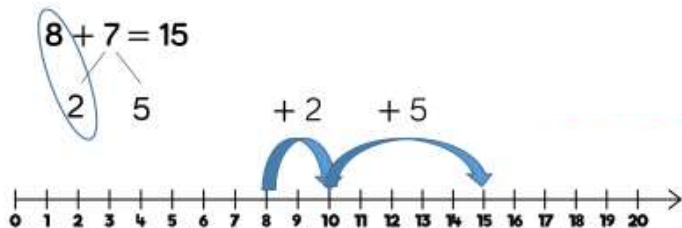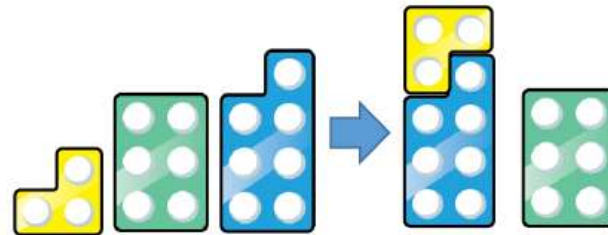
$8 + 7 = 15$

2   5

- When adding 1-digit numbers that cross 10, it is important to highlight ten ones equalling one ten.

- Different manipulatives can be used to represent this exchange. Use concrete resources alongside number lines to support children in understanding how to partition their jumps.

Skill: Add three 1-digit numbers	Year: 2
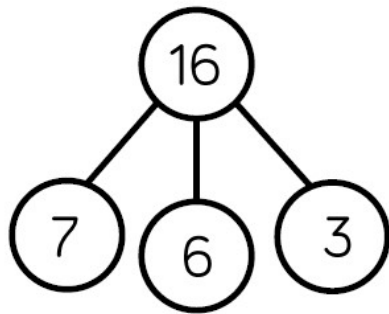
$$7 + 6 + 3 = 16$$

- When adding three 1-digit numbers, children should be encouraged to look for number bonds to 10 or double to add the numbers more efficiently.

- This supports children in their understanding of commutativity.

- Manipulatives that highlight number bonds to 10 are effective when adding three 1-digit numbers

Skill: Add 1-digit and 2-digit numbers to 100
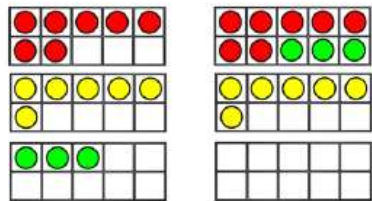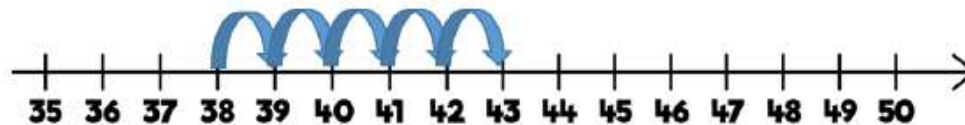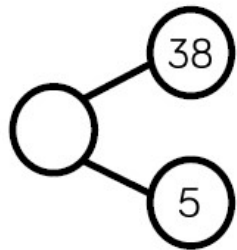
Year: 2/3

38

5

35 36 37 38 39 40 41 42 43 44 45 46 47 48 49 50

$$38 + 5 = 43$$

43	
38	5

1	2	3	4	5	6	7	8	9	10
11	12	13	14	15	16	17	18	19	20
21	22	23	24	25	26	27	28	29	30
31	32	33	34	35	36	37	38	39	40
41	42	43	44	45	46	47	48	49	50
51	52	53	54	55	56	57	58	59	60
61	62	63	64	65	66	67	68	69	70
71	72	73	74	75	76	77	78	79	80
81	82	83	84	85	86	87	88	89	90
91	92	93	94	95	96	97	98	99	100

- When adding single digits to a 2-digit number, children should be encouraged to count on from the larger number.

- They should also apply their knowledge of number bonds to add more efficiently, e.g. 8+5=13 or 38+5=43

- Hundred squares and dienes can support children to find the number bond to 10.

Skill: Add two 2-digit numbers to 100
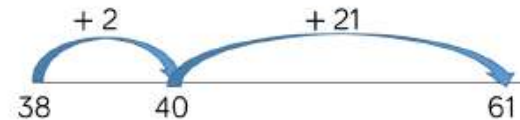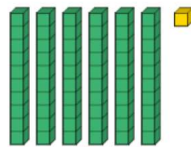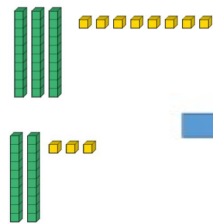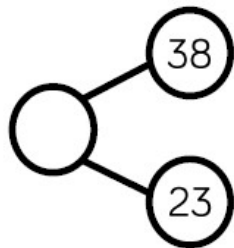
Year: 2/3

$$38 + 23 = 61$$

- At this stage, encourage children to use the formal column method when calculating alongside dienes or place value counters.

- Children can also use a blank number line to count on to find the total. Encourage them to jump in multiples of 10 to become more efficient.

	Skill: Add numbers with up to 3 digits	Year: 3

265

?

164
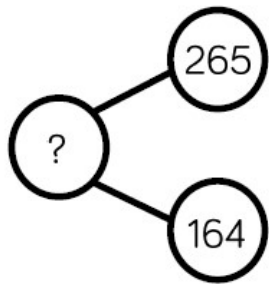
429	
265	164

265 + 164 = 429

Hundreds	Tens	Ones

265
+ 164

429
1

Hundreds	Tens	Ones

- Dienes and place value counters are the most effective manipulatives when adding numbers with up to 3 digits.

- Ensure children write out their calculations alongside any concrete resources so they can see the links to the written column method.

- Plain counters on a place value grid can also be used

Skill: Add numbers with up to 4 digits

Year: 4

1,378 + 2,148 = 3,526
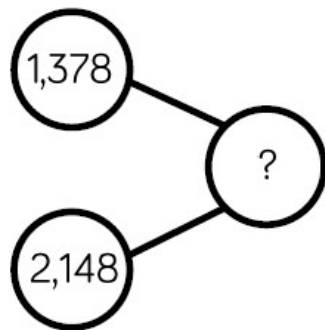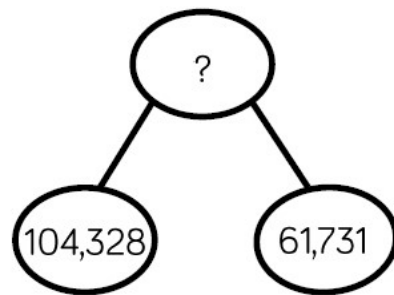
- Dienes and place value counters are the most effective manipulatives when adding numbers with up to 4 digits.

- Ensure children write out their calculation alongside any concrete resources so they can see the links to the written column method.

- Plain counters on a place value grid can also be used

Skill: Add numbers with more than 4 digits

Year: 5/6

104,328 + 61,731 = 166,059

	166,059	
104,328		61,731

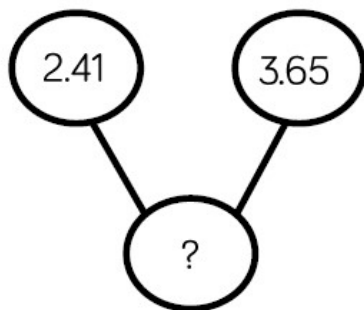|					
1	0	4	3	2	8
+	6	1	7	3	1
1	6	6	0	5	9
			1		

- Place value counters are the most effective concrete resources when adding numbers with more than 4 digits.

- At this stage, children should be encouraged to work in the abstract, using the column method to add larger numbers efficiently.

Skill: Add with up to 3 decimal places	Year: 5/6

2.41   3.65
     ?

6.06	
3.65	2.41

$$3.65 + 2.41 = 6.06$$

$$\begin{array}{r} 3.65 \\ + 2.41 \\ \hline 6.06 \\ \hline 1 \end{array}$$

Ones	•	Tenths	Hundredths

- Place value counters are the most effective manipulatives when adding decimals with 1,2 and then 3 decimal places.

- Ensure children have experience of adding decimals with a variety of decimal places. This includes putting this into context when adding money and other measures.
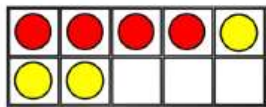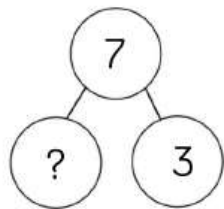
SUBTRACTION

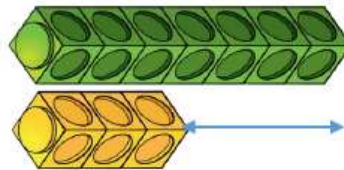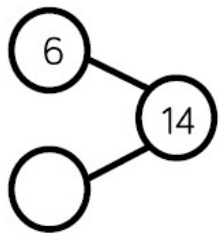| Skill: Subtract 1-digit numbers within 10	Year: 1

$7 - 3 = 4$

First   Then   Now
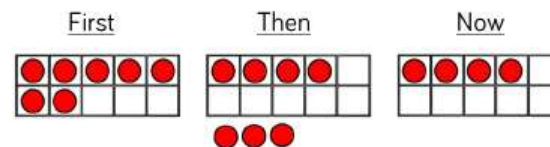
- Part-whole models, bar models, ten frames & numicon support partitioning.

- Ten frames, number tracks, single bar models support reduction.

- Cubes and bar models can support finding the difference.
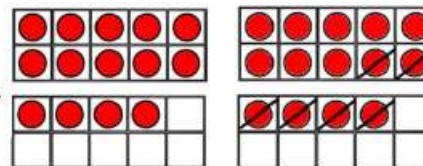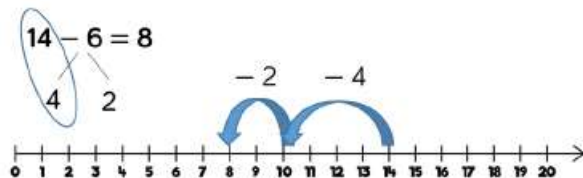
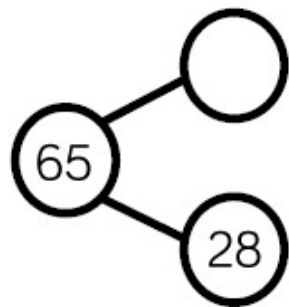| Skill: Subtract 1 and 2-digit numbers to 20	Year: 1/2
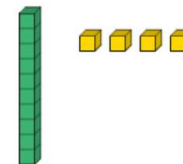
$$14 - 6 = 8$$

- When subtracting 1-digit numbers that cross 10, it is important to highlight ten ones equalling one ten.

- Children should be encouraged to find the number bond when partitioning the subtracted number. Ten frames, numicon and number lines are particularly useful for this.

$$65 - 28 = 37$$

$+ 2$ $+ 30$ $+ 5$

28   30   60   65

65	
28	37

Tens	Ones
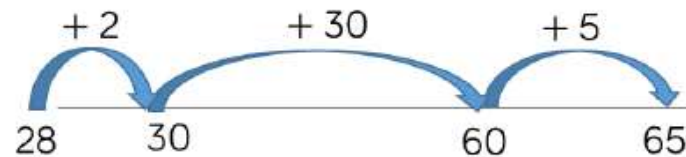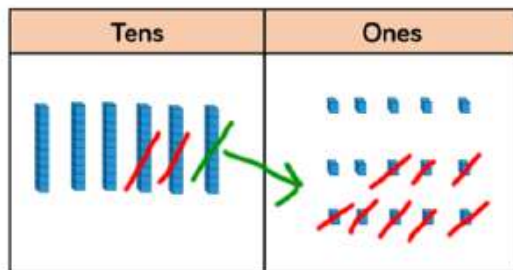
$$\begin{array}{r} {}^{5}{}^{1} \\ 65 \\ -\ 28 \\ \hline 37 \end{array}$$
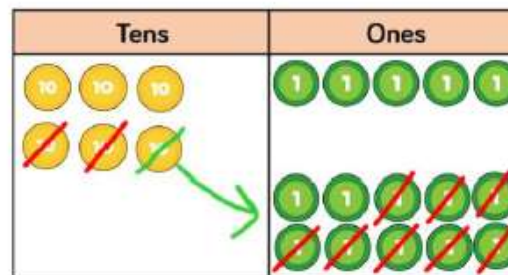
Tens	Ones

- At this stage, encourage children to use the formal column method when calculating alongside dienes or place value counters.

- Children can also use a blank number line to count on to find the difference. Encourage them to jump to multiples of 10 to become more efficient.

435

273   ?
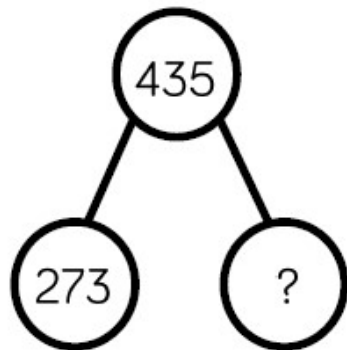
$$435 - 273 = 262$$

435	
273	262

Hundreds	Tens	Ones

$$\begin{array}{r} {}^{3}\cancel{4}{}^{1}35 \\ -\ 273 \\ \hline 262 \end{array}$$

Hundreds	Tens	Ones

- Dienes and place value counters are the most effective manipulative when subtracting numbers with up to 3 digits.

- Ensure children write out their calculation alongside any concrete resources to they can see the links to the written method.

- Plain counters on a place value grid can also be used

Skill: Subtract numbers with up to 4 digits

Year: 4

4,357 − 2,735 = 1,622

4,357	
2,735	1,622

$$\begin{array}{r} \overset{3\;1}{4\cancel{3}57} \\ -\;2735 \\ \hline 1622 \end{array}$$

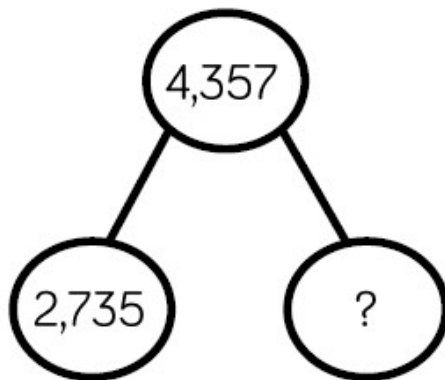| Thousands	Hundreds	Tens	Ones

Thousands	Hundreds	Tens	Ones

- Dienes and place value counters are the most effective manipulatives when subtracting numbers with up to 4 digits.

- Ensure children write out their calculation alongside any concrete resources so they can see the links to the written column method.

- Plain counters on a place value grid can also be used

|	
Skill: Subtract numbers with more than 4 digits	Year: 5/6
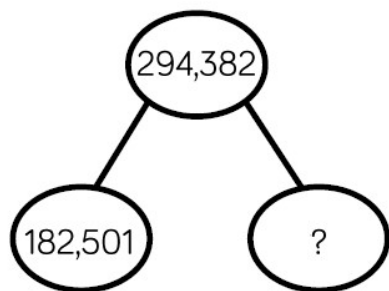
294,382 − 182,501 = 111,881

- Place value counters on a place value grid are the most effective concrete resource when subtracting numbers with more than 4 digits.

- At this stage, children should be encouraged to work in the abstract, using column method to subtract larger numbers efficiently.

Skill: Subtract with up to 3 decimal places	**Year: 5/6**
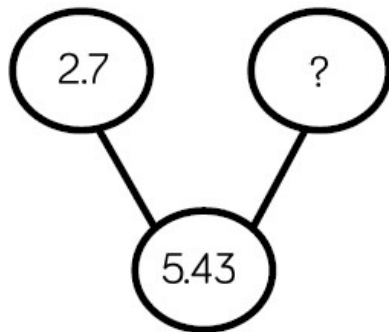
- Place value counters on a place value grid are the most effective manipulative when subtracting decimals with 1, 2 and then 3 decimal places.

- Ensure children have experience of subtracting decimals with a variety of decimal places. This includes putting this into context when subtracting money and other measures.

Glossary

Addend: a number to be added to another.

Aggregation: combining two or more quantities or measure to find a total.

Augmentation: increasing a quantity or measure by another quantity.

Commutative: numbers can be added in any order.

Complement: in addition, a number and it's complement make a total.

Difference: the numerical difference between two numbers is found by comparing the quantity in each group.

Exchange: change a number or expression for another of an equal value.

Minuend: a quantity or number from which another is subtracted.

Partitioning: splitting a number into its component parts.

Reduction: subtraction as take away.

Subitise: instantly recognise the numbers of objects in a small group without needing to count.

Subtrahend: a number subtracted from another.

Sum: the result of an addition.

Total: the aggregate or the sum found by addition.