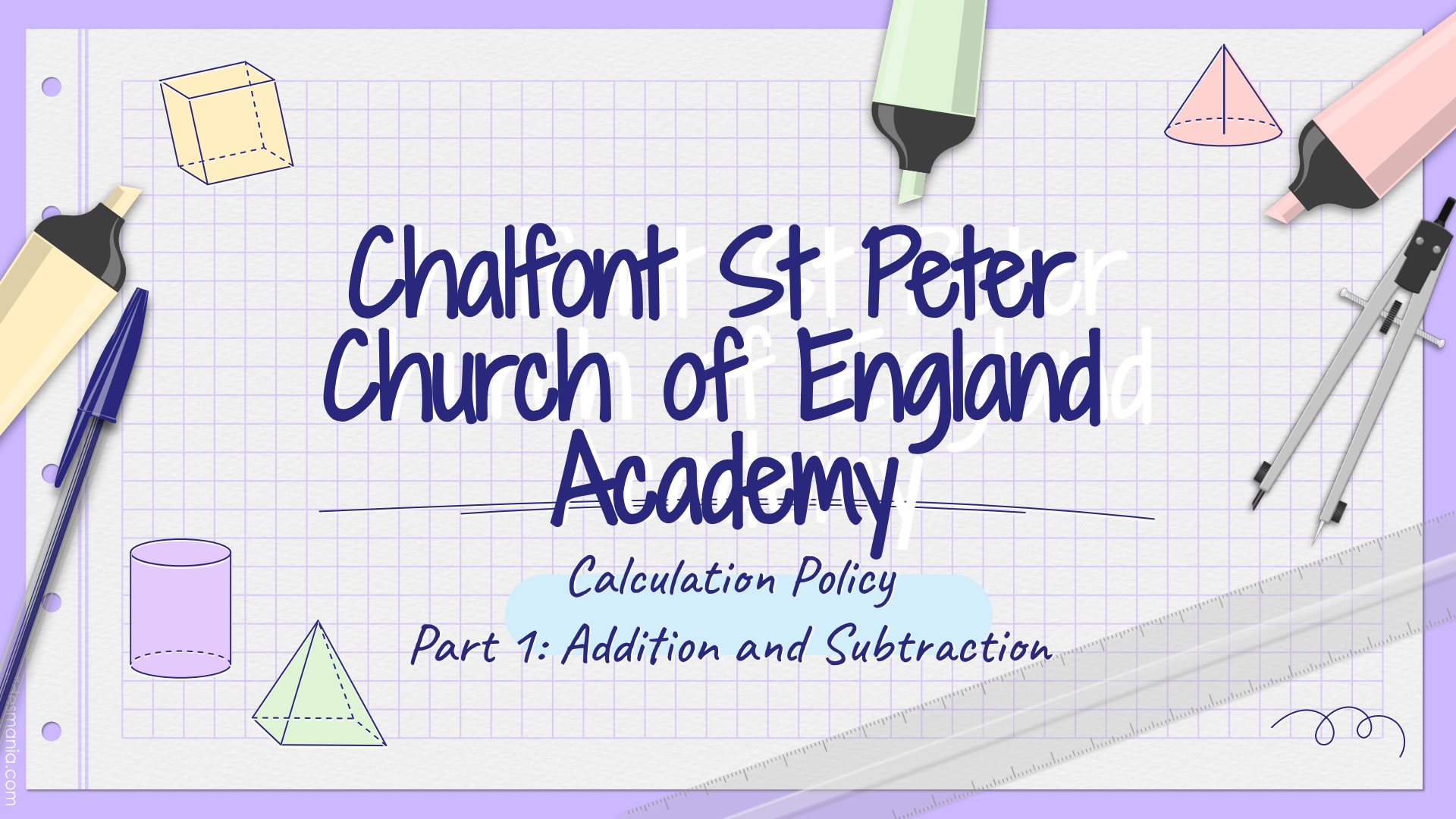


The background is a light purple grid with various math-related illustrations. In the top left is a yellow cube. In the top center is a green highlighter. In the top right is a pink cone and a pink highlighter. On the left side is a yellow and black pen and a blue pen. In the bottom left is a purple cylinder and a green pyramid. On the right side is a silver compass. At the bottom is a long ruler and a blue squiggle.

Chalfont St Peter Church of England Academy

Calculation Policy

Part 1: Addition and Subtraction

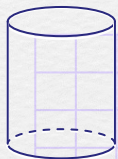


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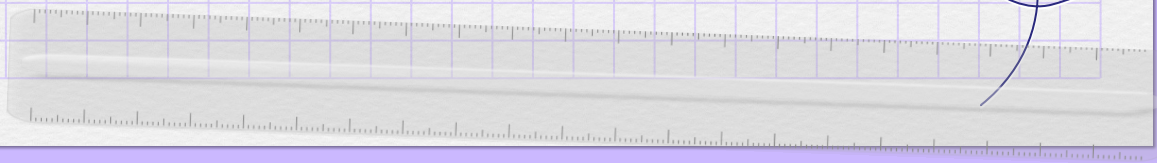
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Keywords

Addend - A number to be added to another.

Aggregation - combining two or more quantities or measures 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 its complement make a total e.g. 300 is the complement to 700 to make 1,000

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 number of objects in a small group without needing to count.

Subtrahend - A number to be subtracted from another.

Sum - The result of an addition.

Total - The aggregate or the sum found by addition.

Overview - Progression of Skills in Addition

- Add three 1-digit numbers
- Add 1 and 2-digit numbers to 100
- Add two 2-digit numbers

Year 2

- Add with up to 4-digits

Year 4

- Add with more than 4-digits
- Add with up to 3 decimal places

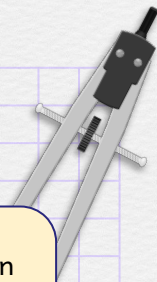
Year 6

Year 3

- Add with up to 3-digits

Year 5

- Add with more than 4-digits
- Add with up to 3 decimal places



Overview - Progression of Skills in Subtraction

- Subtract 1 and 2-digit numbers to 100
- Subtract two 2-digit numbers

Year 2

- Subtract with up to 4-digits

Year 4

- Subtract with more than 4-digits
- Subtract with up to 3 decimal places

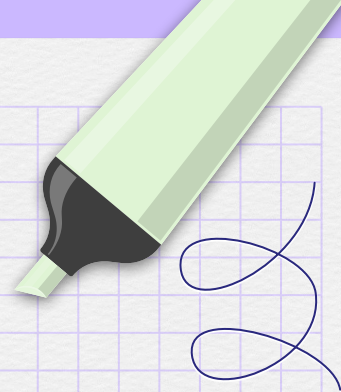
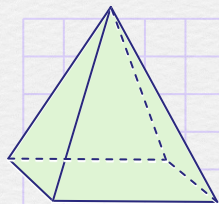
Year 6

Year 3

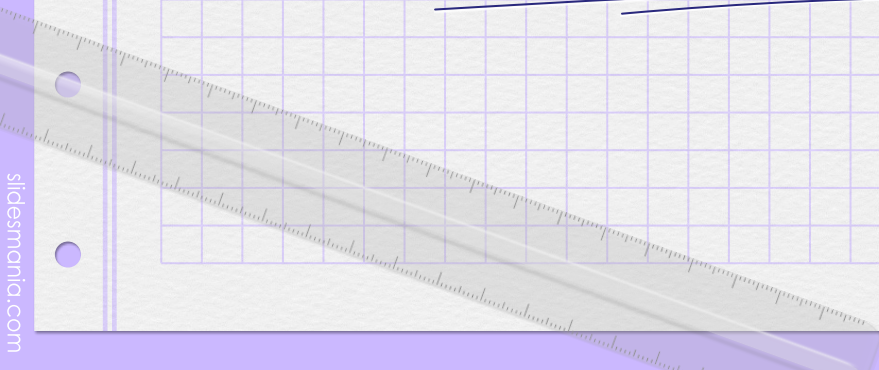
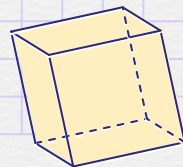
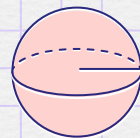
- Subtract with up to 3-digits

Year 5

- Subtract with more than 4-digits
- Subtract with up to 3 decimal places



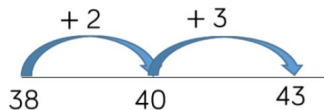
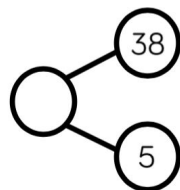
Year 3



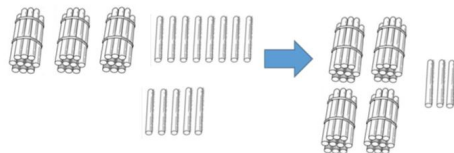
Addition in Year 3

Skill: Add 1-digit and 2-digit numbers to 100

Year: 2/3



$$38 + 5 = 43$$



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 two-digit number, children should be encouraged to count on from the larger number.

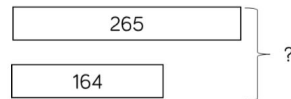
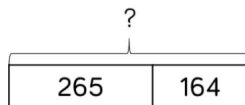
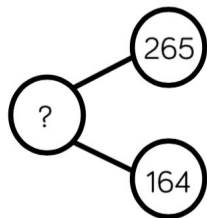
They should also apply their knowledge of number bonds to add more efficiently e.g. $8 + 5 = 13$ so $38 + 5 = 43$.

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

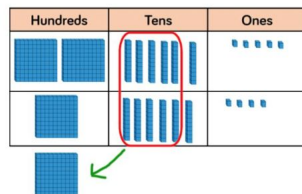
Addition in Year 3

Skill: Add numbers with up to 3 digits

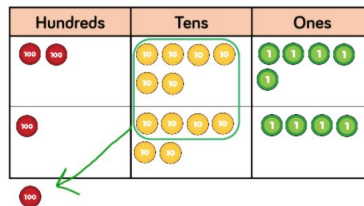
Year: 3



$$265 + 164 = 429$$



$$\begin{array}{r} 265 \\ + 164 \\ \hline 429 \\ 1 \end{array}$$



Base 10 and place value counters are the most effective manipulatives when adding numbers with up to 3 digits.

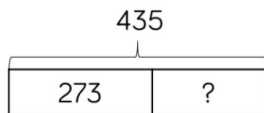
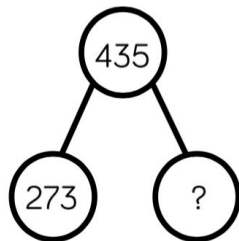
Ensure children write out their calculation alongside any concrete resources so they can see the links to the written column method.

Plain counters on a place value grid can also be used to support learning.

Subtraction in Year 3

Skill: Subtract numbers with up to 3 digits

Year: 3



$$435 - 273 = 262$$

Hundreds	Tens	Ones

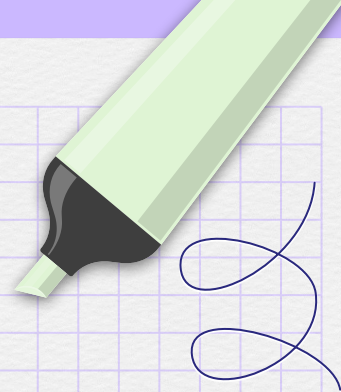
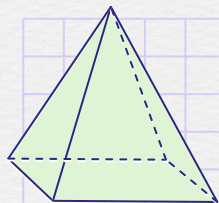
$$\begin{array}{r} 435 \\ - 273 \\ \hline 262 \end{array}$$

Hundreds	Tens	Ones

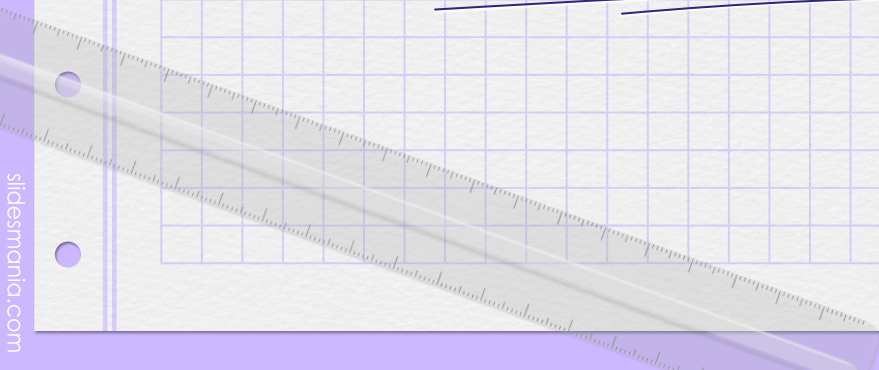
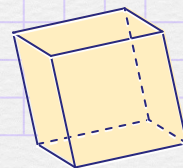
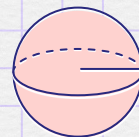
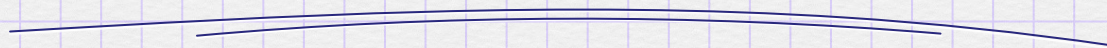
Base 10 and place value counters are the most effective manipulative when subtracting numbers with up to 3 digits.

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

Plain counters on a place value grid can also be used to support learning.



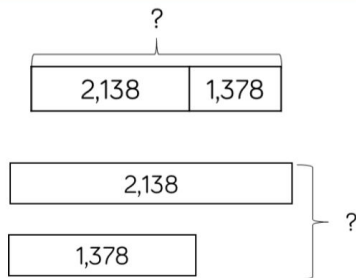
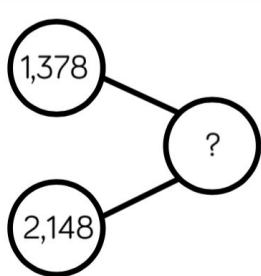
Year 4



Addition in Year 4

Skill: Add numbers with up to 4 digits

Year: 4



	1	3	7	8
+	2	1	4	8
	3	5	2	6
	1	1		

$$1,378 + 2,148 = 3,526$$

Thousands	Hundreds	Tens	Ones

Thousands	Hundreds	Tens	Ones

Base 10 and place value counters are the most effective manipulatives when adding numbers with up to 4 digits.

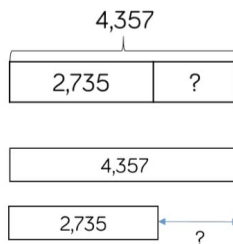
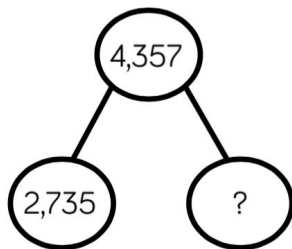
Ensure children write out their calculation alongside any concrete resources so they can see the links to the written column method.

Plain counters on a place value grid can also be used to support learning.

Subtraction in Year 4

Skill: Subtract numbers with up to 4 digits

Year: 4



$$\begin{array}{r} 3 \ 1 \\ 4357 \\ - 2735 \\ \hline 1622 \end{array}$$

$$4,357 - 2,735 = 1,622$$

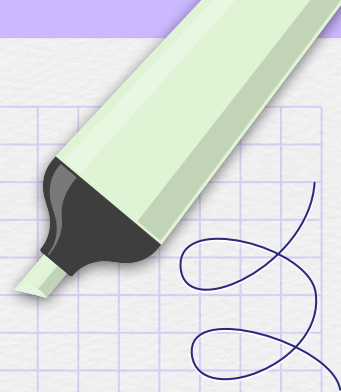
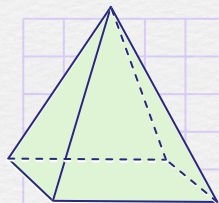
Thousands	Hundreds	Tens	Ones

Thousands	Hundreds	Tens	Ones

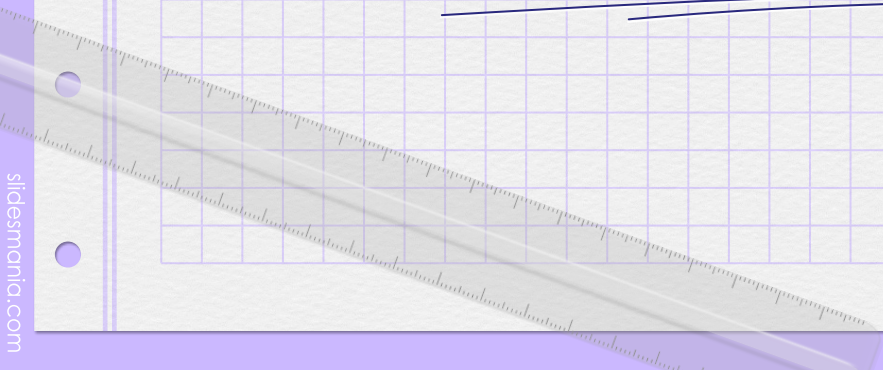
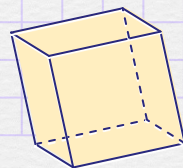
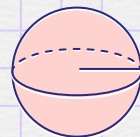
Base 10 and place value counters are the most effective manipulatives when subtracting numbers with up to 4 digits.

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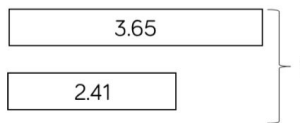
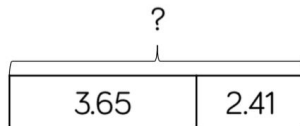
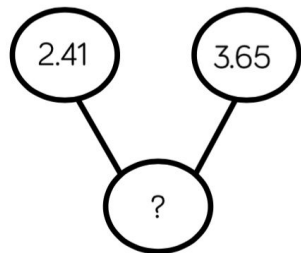
Year 5



Addition in Year 5

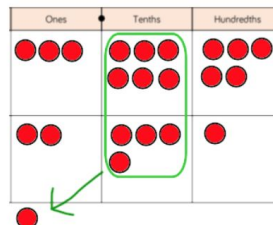
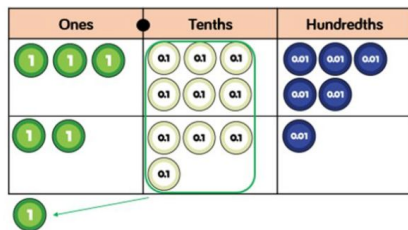
Skill: Add with up to 3 decimal places

Year: 5



$$3.65 + 2.41 = 6.06$$

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



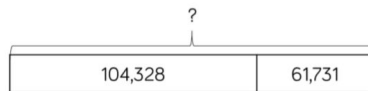
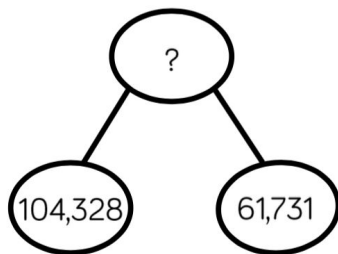
Place value counters and plain counters on a place value grid are the most effective manipulatives when adding decimals with 1, 2 and then 3 decimal places.

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.

Addition in Year 5

Skill: Add numbers with more than 4 digits

Year: 5/6



104,328

61,731

$$104,328 + 61,731 = 166,059$$

HTh	TTh	Th	H	T	O
100,000		1,000 1,000 1,000 1,000	100 100 100	10 10	1 1 1 1 1 1 1 1
	10,000 10,000 10,000 10,000	1,000	100 100 100 100 100 100 100	10 10 10	1

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

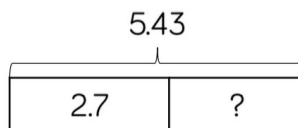
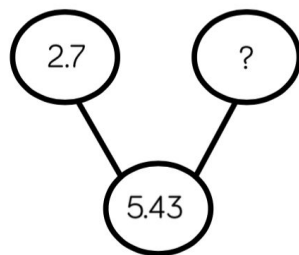
Place value counters or plain counters on a place value grid are the most effective concrete resources when adding numbers with more than 4 digits.

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

Subtraction in Year 5

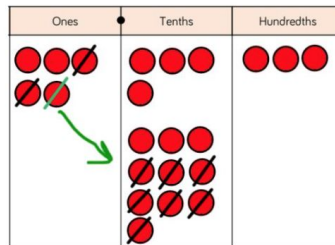
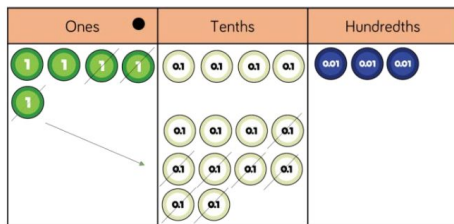
Skill: Subtract with up to 3 decimal places

Year: 5



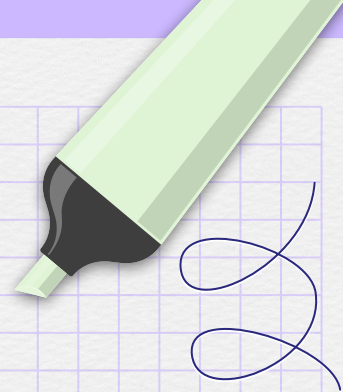
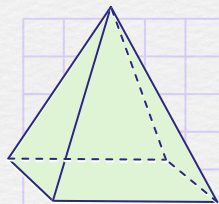
$$5.43 - 2.7 = 2.73$$

$$\begin{array}{r} 4 \text{ } 1 \\ 5.43 \\ - 2.7 \\ \hline 2.73 \end{array}$$



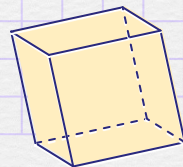
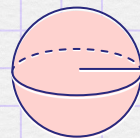
Place value counters and plain counters on a place value grid are the most effective manipulative when subtracting decimals with 1, 2 and then 3 decimal places.

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.



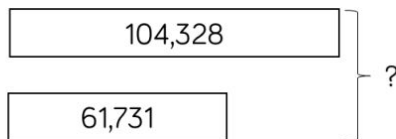
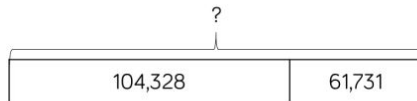
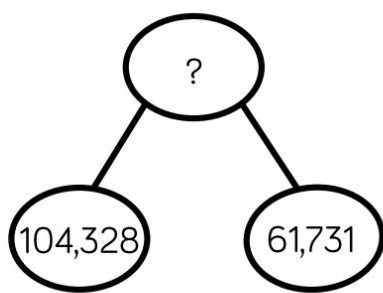
Year 6

Recap of all previously taught material.



Skill: Add numbers with more than 4 digits

Year: 5/6



$$104,328 + 61,731 = 166,059$$

HTh	TTh	Th	H	T	O
100,000		1,000 1,000 1,000 1,000	100 100 100	10 10	1 1 1 1 1 1 1 1
	10,000 10,000 10,000 10,000 10,000 10,000	1,000	100 100 100 100 100 100 100	10 10 10	1

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

1

Place value counters or plain counters on a place value grid 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.