

SUBTRACTION GUIDELINES – Written Arithmetic

Year Four

- = signs and missing numbers

Continue using a range of equations as in Year 1 and 2 but with appropriate numbers.

Written compact method

- Subtract numbers with up to 4 digits using the formal written method of columnar subtraction
- Include subtraction of numbers of different lengths eg 2,405 - 328
- Subtraction of decimals up to 2 decimal places and including in the context of money and measures
- Include calculations that involve missing digits and use column subtraction to help solve them. Also include calculations with missing digits set out in columns.

eg.

| | |
|--|---|
| | 2 |
|--|---|

 -

| | |
|---|--|
| 4 | |
|---|--|

 = 43

- Ensure that columns are labelled and the addition sign is on the right-hand side

Example 1: 2,405 - 328 = 2,077

| | | | | |
|----|---|----------------|---|---|
| Th | H | T | U | |
| | 3 | 19 | 1 | |
| | 2 | 4 0 | 5 | |
| | 3 | 2 | 8 | - |
| | 2 | 0 | 7 | 7 |

Example 2: 12.5 – 6.01 = 6.49

| | | | | |
|---|----------------|---|---|---|
| T | U. | t | h | |
| | 0 | 1 | 4 | 1 |
| | 1 2 | 5 | 0 | |
| | 6 | 0 | 1 | - |
| | 6 | 4 | 9 | |

← Place a zero here

Year Five

- = signs and missing numbers

Continue using a range of equations as in Year 1 and 2 but with appropriate numbers.

Written compact method

- Subtract numbers with more than 4 digits using the formal written method of columnar addition
- Include subtraction of numbers of different lengths eg. 234,897 - 45,996
- Subtraction of decimals up to 3 decimal places and including mixed numbers of decimal places eg. 15.4 - 7.77
- Include calculations that involve missing numbers and therefore use of inverse operations. Use column method to solve. eg. 6,719 = - 4,562
- Ensure that columns are labelled and the addition sign is on the right-hand side

Example 1: 234,897 - 45,996 = 188,901

| | | | | | | |
|-----|--------------|--------------|--------------|---|---|---|
| HTh | TTh | Th | H | T | U | |
| | 1 | 12 | 13 | 1 | | |
| | 2 | 3 | 4 | 8 | 9 | 7 |
| | 4 | 5 | 9 | 9 | 6 | - |
| | 1 | 8 | 8 | 9 | 0 | 1 |

Example 2: 15.4 – 7.77 = 7.63

| | | | | |
|---|----------------|--------------|----|---|
| T | U. | t | h | |
| | 0 | 14 | 13 | 1 |
| | 1 5 | 4 | 0 | |
| | 7 | 7 | 7 | - |
| | 7 | 6 | 3 | |

← Place a zero here

Year Six

- = signs and missing numbers

Continue using a range of equations as in Year 1 and 2 but with appropriate numbers.

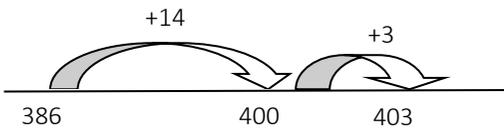
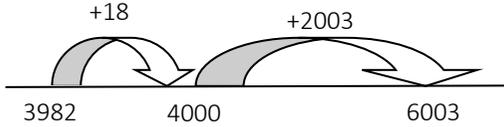
Written compact method

- See all examples from year 4 and 5.
- Extend to numbers with any number of digits and decimal places up to 3 decimal places.
- Incorporate reasoning style questions involving missing numbers and missing digits set out in a range of ways including columns and horizontally.

Set word problems such as this for the children to solve:

Sammy wanted to buy a DVD player for £326.98 and a DVD box set for £49.50. How much money will she need? How much more will the DVD player cost?

SUBTRACTION GUIDELINES – Mental Arithmetic

| Year Four | Year Five | Year Six |
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| <p><u>Mental</u></p> <p><u>Mental Fluency</u> Practise mental calculations to aid fluency.</p> <p><u>Find a small difference by counting up</u></p> <p>Start with 3-digit numbers progressing to four digit numbers when able. This can be modelled on an empty number line.</p> <p>Question: $403 - 386 = 17$ Could be written as: $386 + \square = 403$</p>  <p align="center">$14 + 3 = 17$</p> <p>Children should be encouraged to use known number facts to reduce the number of steps.</p> <p><u>Subtract the nearest multiple of 10 or 100 and adjust</u></p> <p>Secure mental methods model the method. e.g. $35 - 19$ is the same as $35 - 20 + 1$. Appropriate numbers e.g. $63 - 29$ is the same as $63 - 30 + 1$ eg. subtracting 9, 19, 21 ... from any two-digit number, subtracting 99, 199, 201... from a three digit-number.</p> <p><u>Subtract 1000 from any given number</u></p> <p>Use understanding of place value eg $7546 - 1000 = 6546$ Answer questions such as, what is the missing number in the number sentence and how do you know? $9742 - \underline{\quad} = 5742$</p> | <p><u>Mental</u></p> <p><u>Mental Fluency</u> Practise mental calculations with increasingly large numbers to aid fluency.</p> <p>Children should be able to respond rapidly to oral or written questions, explaining the strategy used, e.g. 750 subtract 255, subtract 400 from 1360, find the difference between 4500 and 1050, subtract 3250 from 7600, 1800 less than 3300, decrease 11 580 by 4000.</p> <p><u>Work out mentally by counting up from a smaller to a larger number when the numbers are near to a boundary</u></p> <p>e.g. $8000 - 2785$ is $5 + 10 + 200 + 5000 = 5215$</p> <p>Question: $6003 - 3982 = 2021$ Could be written as: $3982 + \square = 6003$</p>  <p align="center">$2003 + 18 = 2021$</p> <p><u>Derive quickly related facts</u></p> <p>e.g. $80 - 50 = 30$, $800 - 500 = 300$</p> <p><u>Derive quickly subtraction calculations from 100 or subtraction of multiples of 50 from 1000</u></p> <p>e.g. $100 - 32 = 68$ or $1000 - 150 = 850$</p> <p><u>Subtract the nearest multiple of 10, 100 or 1000 and adjust</u></p> <p>e.g. subtracting 9, 19, 21 ... from any two-digit number, subtracting 99, 199, 201... from a three digit-number, subtracting 999, 1999, 2001 from a four digit number.</p> | <p><u>Mental</u></p> <p><u>Mental Fluency</u> Perform mental calculations, including with mixed operations and large numbers to aid fluency.</p> <p>Present the children with problems such as:</p> <ul style="list-style-type: none"> Taznim measured two lengths of material. One measured 3.45m and the other 2.65m. How much longer was the longest? <p>Discuss mental calculation strategies that can be used to answer these, for example complementary addition for subtraction, number facts etc...</p> <p>Louis poured 1998ml of water into one bucket and 2550ml into another. How much more was in the second bucket?</p> <p>Discuss suitable mental calculation strategies, for example, rounding and adjusting for subtraction.</p> <p>Teachers could decide on the mental calculation that they wish the children to rehearse, practice and then make up problems for them to answer. Common mental calculation strategies for subtraction include:</p> <ul style="list-style-type: none"> Partitioning and recombining Use number pairs to 10 and 100 Subtracting near multiples of ten and adjusting – include decimals eg 0.9, 1.9, 2.9 etc... Using patterns of similar calculations Using known number facts Bridging though ten, hundred, tenth etc... Complementary addition for subtraction |