

This guidance supports transition from the explicit teaching of a range of strategies reinforced or introduced in 5LS7 and 5LS9. Pupils will be using a range of skills to achieve the use of strategies such as rounding, using complements (to 1, 10, 100 and beyond), multiplication fact recall and regrouping and recombining numbers in a range of ways.

Place Value – Digit position (addition and subtraction)

Using this knowledge will help pupils with simple addition and subtraction calculations either with or without the aid of a place value chart. This strategy is most effective for calculations such as:

- $0.008 + 1.23$
- $12.56 - 0.03$
- $10,001 + 530$
- $9,000,341 - 1000$

Place Value – Use known facts (applying multiplication and division of 10, 100 and 1,000)

Applying place value understanding alongside known facts, pupils will be able to derive new facts. Pupils may need to apply regrouping and recombining depending on the calculation. Calculations appropriate for this strategy might include:

- 0.3×10 (using base fact 3×10)
- 0.7×6 (using base fact 7×6)
- $150 \div 3$ (using base fact $15 \div 3$)
- $140 \div 7$ (using base fact $14 \div 7$)

Doubling and Halving (multiplication and division)

This strategy can be used to multiply and divide by 4 and 8, or alternatively alongside knowledge of operations. Pupils can use this within multiplication by doubling one side and halving the other to change a calculation to be within the range of their known facts. They might also use place value to support finding the solution alongside this strategy. The following examples suit this strategy:

- 22×4 (knowing this is the same as $22 \times 2 \times 2$)
- $88 \div 4$ (knowing this is the same as $88 \div 2 \div 2$)
- 18×3 (knowing this is the same as 9×6)
- 160×35 (knowing this is the same as 80×70 and then using base fact 8×7)

Equal Sum and Equal difference (addition and subtraction)

Both strategies are similar in the way that pupils recognise how they can adjust the calculation to make it more manageable to work out using a mental strategy, yet how they adjust will be different. Again, pupils have explored this in previous year groups.

Equal sum will ask pupils to look for a more manageable number and readjust the calculation by taking from one side and adding to another (either number).

For example:

- $1999 + 457$ (adjusting to $2,000 + 456$)
- $267 + 398$ (adjusting to $265 + 400$)

Equal difference will expect pupils to see if they can make the same adjustment to both sides to make the calculation easier to work out. The adjustment can be up or down, but must be the same on each side to keep the difference equal.

For example:

- $3,000,001 - 34$ (adjusting to $3,000,000 - 33$)
- $1,943 - 998$ (adjusting to $1,945 - 1,000$)

Regrouping (Partitioning)

By using this strategy in a range of ways, pupils can deconstruct numbers flexibly to help them make the calculation easier to solve. This might be by regrouping a number to cross a boundary, by doing the calculation in two stages, or it might be to help them use known facts more easily to solve it. If pupils are less confident with equal sum or difference this is an alternative strategy.

Examples could include:

- $14 - 7.01$ (regroup the 7.01 into 7 and 0.1 to back 7 and then 0.1)
- $536 - 9$ (regroup the 9 into 6 and 3 to go back 6 and then 3)
- 34×6 (regroup 30 and 4 and then multiply (30×6 and 4×6) and recombine)
- $346 + 55$ (regroup 55 into 54 and 1 to cross the hundreds boundary)