



# Year 4 Addition and Subtraction

## Prior Knowledge (Y3)

- Add and subtract numbers mentally, including:
  - a three-digit number and 1s
  - a three-digit number and 10s
  - a three-digit number and 100s
- Add and subtract numbers with up to 3 digits, using formal written methods of columnar addition and subtraction
- Estimate the answer to a calculation and use inverse operations to check answers
- Solve problems, including missing number problems, using number facts, place value, and more complex addition and subtraction

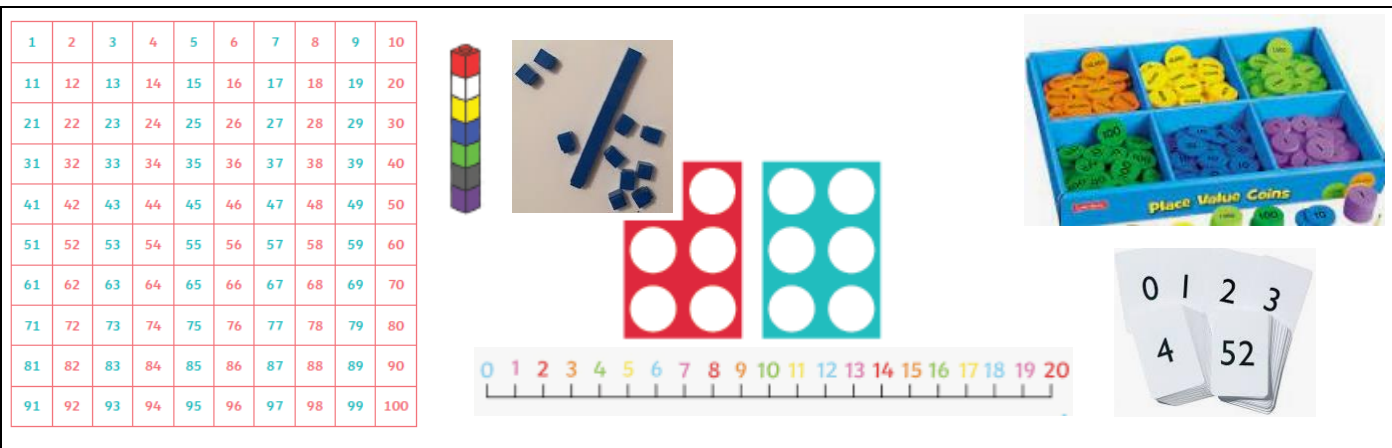
addition and subtraction		Working Towards	Within	Expected	Above
<b>+</b> <b>-</b>	Add and subtract numbers with up to 4 digits using the formal written methods of columnar addition and subtraction where appropriate				
	Estimate and use inverse operations to check answers to a calculation				
	Solve addition and subtraction two-step problems in contexts, deciding which operations and methods to use and why				
Highlights: _____					
_____					



## Glossary

vocabulary	word class	definition
addition +	noun	the process of calculating the total of two or more numbers or amounts
add +	verb	put together (two or more numbers or amounts) to calculate their total value
subtraction -	noun	the process of taking a matrix, vector, or other quantity away from another under specific rules to obtain the difference
subtract -	verb	take away (a number or amount) from another to calculate the difference
equal (to) =	adjective	being the same in quantity, size, degree, or value
commutative	adjective	involving the condition that a group of quantities connected by operators gives the same result whatever the order of the quantities involved, e.g. $a \times b = b \times a$
inverse	noun	a reciprocal quantity, mathematical expression, geometric figure, etc. which is the result of inversion
calculation	noun	a mathematical determination of the amount or number of something
columnar	adjective	resembling an upright pillar or column

inverse	addition	altogether	take away
operation	more	subtract	minus
opposite	plus	take	remove
reverse	increase	difference	fewer
backwards	sum	how many less	decrease



## Addition and Subtraction Methods

### Add 4-digit numbers

No exchange

$$\begin{array}{r} 5162 \\ +3427 \\ \hline 8589 \end{array}$$

Starting with the ones, add each column in turn.

One exchange

$$\begin{array}{r} 5162 \\ +3497 \\ \hline 8659 \\ 1 \end{array}$$

Starting with the ones, add each column in turn. When adding 6 tens + 9 tens = 15 tens  
- 1 hundred + 5 tens  
Place 1 hundred under the hundreds answer and 5 tens in the answer.

Multiple exchanges

$$\begin{array}{r} 5864 \\ +3497 \\ \hline 9361 \\ 111 \end{array}$$

Starting with the ones, add each column in turn. Exchange tens, hundreds and/ or thousands as required.

### Subtract 4-digit numbers

No exchange

$$\begin{array}{r} 5789 \\ -3421 \\ \hline 2368 \end{array}$$

Starting with the ones, subtract each column in turn.

One exchange

$$\begin{array}{r} 61 \\ 5749 \\ -3471 \\ \hline 2278 \end{array}$$

Starting with the ones, subtract each column in turn. When subtracting 4 tens - 7 tens, exchange 1 hundred to make:  
14 tens - 7 tens = 7 tens

Multiple exchanges

$$\begin{array}{r} 6131 \\ 5742 \\ -3476 \\ \hline 2266 \end{array}$$

Starting with the ones, subtract each column in turn. Exchange tens, hundreds and/ or thousands as required.

## Add and Subtract 1s, 10s, 100s, 1000s

Here is the number 3124



Add 2 thousands = 5124

Add 5 hundreds = 5624

Subtract 2 tens = 5604

Add 5 ones = 5609

Here is the number 6708

Thousands	Hundreds	Tens	Ones
6	7	0	8

Add 3 thousands = 9708

Subtract 4 hundreds = 9308

Add 5 tens = 9358

Subtract 7 ones = 9351

**Crossing ones, tens or hundreds**

5392 + 4 tens = 5432 crossing tens

5126 - 600 = 4526 crossing hundreds

When crossing ones, tens or hundreds, more than one digit will change

### Addition: Column Method

**1**

$$\begin{array}{r} 7349 \\ +6785 \\ \hline \end{array}$$

Place the numbers one on top of the other, lining up the thousands, hundreds, tens and ones.

**2**

$$\begin{array}{r} 7349 \\ +6785 \\ \hline 4 \end{array}$$

Add the ones and write the answer.

**3**

$$\begin{array}{r} 7349 \\ +6785 \\ \hline 4 \end{array}$$

Carry any tens to the tens column.

**4**

$$\begin{array}{r} 7349 \\ +6785 \\ \hline 34 \end{array}$$

Add the tens including any tens you have carried. Carry any hundreds to the hundreds column.

**5**

$$\begin{array}{r} 7349 \\ +6785 \\ \hline 134 \end{array}$$

Add the hundreds including any hundreds you have carried.

**6**

$$\begin{array}{r} 7349 \\ +6785 \\ \hline 14134 \end{array}$$

Add the thousands including any thousands you've carried.

**7**

$$\begin{array}{r} 7349 \\ +6785 \\ \hline 14134 \\ \hline 111 \end{array}$$

Check your answer.

## Round to Estimate

$$1635 + 386 = 2021$$

Round to the nearest ten

$$1640 + 390 = 2030$$

Round to the nearest hundred

$$1600 + 400 = 2000$$

Both give a reasonable estimate, but rounding the nearest ten is more accurate.

$$9362 - 5729 = 3622$$

Round to the nearest hundred

$$9400 - 5700 = 3700$$

Round to the nearest thousand

$$9000 - 6000 = 3000$$

Rounding to the nearest hundred is much more accurate in this case.

## Checking Strategies

### Using Inverse

3476	
2732	744

3476 - 744 = 2732 can be checked using 2732 + 744 = 3476

This part whole shows the inverse calculations using these three numbers.



1549 + 2688 = 4237	2688 + 1549 = 4237
4237 - 1549 = 2688	4237 - 2688 = 1549

### Adding in a different order

$$420 + 372 + 280 =$$

### Change to

$$420 + 280 + 372 =$$

$$\text{As } 420 + 280 = 700$$

$$(\text{because } 42 + 28 = 70)$$

$$420 + 280 + 372 = 700 + 372 = 1072$$

### Subtraction: Column Method

**1**

$$\begin{array}{r} 5346 \\ -2747 \\ \hline \end{array}$$

Place the numbers one on top of the other, lining up the thousands, hundreds, tens and ones. Subtract the ones (the answer to 6 - 7 is negative).

**2**

$$\begin{array}{r} 5346 \\ -2747 \\ \hline 9 \end{array}$$

Exchange a 10 from the 40 to give 16 ones. Subtract the ones: 16 - 7 = 9.

**3**

$$\begin{array}{r} 5346 \\ -2747 \\ \hline 99 \end{array}$$

Subtract the tens (the answer to 30 - 40 is negative). Exchange a 100 from the 300 to give: 130 - 40 = 90.

**4**

$$\begin{array}{r} 5346 \\ -2747 \\ \hline 599 \end{array}$$

Subtract the hundreds (the answer to 200 - 700 is negative). Exchange a 1000 from the 5000 to give: 1200 - 700 = 500.

**5**

$$\begin{array}{r} 5346 \\ -2747 \\ \hline 2599 \end{array}$$

Subtract the thousands: 4000 - 2000 = 2000.

**6**

$$\begin{array}{r} 5346 \\ -2747 \\ \hline 2599 \end{array}$$

Check your answer.



## Future Learning

### Year 5

- Add and subtract whole numbers with more than 4 digits, including using formal written methods (columnar addition and subtraction)
- Add and subtract numbers mentally with increasingly large numbers
- Use rounding to check answers to calculations and determine, in the context of a problem, levels of accuracy
- Solve addition and subtraction multi-step problems in contexts, deciding which operations and methods to use and why

### Year 6

- Solve addition and subtraction multi-step problems in contexts, deciding which operations and methods to use and why