



# Year 3 Addition and Subtraction

## Prior Knowledge

- Represent and use number bonds and related subtraction facts within 20 (Y1)
- Add and subtract numbers using concrete objects, pictorial representations, and mentally, including:
  - a two-digit number and 1s
  - a two-digit number and 10s
  - 2 two-digit numbers
  - adding 3 one-digit numbers (Y1&2)
- Show that addition of 2 numbers can be done in any order (commutative) and subtraction of one number from another cannot (Y2)
- Recognise and use the inverse relationship between addition and subtraction and use this to check calculations and solve missing number problems (Y1&2)

addition and subtraction		Working Towards	Within	Expected	Above
+ -	Add and subtract numbers mentally, including: <ul style="list-style-type: none"> <li>a three-digit number and 1s</li> <li>a three-digit number and 10s</li> <li>a three-digit number and 100s</li> </ul>				
	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.				
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

combined  
altogether sum  
more + add  
and plus  
total

take away  
minus reduce  
how many more?  
fewer less  
How many remain?  
difference subtract

equals  
=  
makes

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



## Addition and Subtraction Methods

### 3-digit and 1-digit numbers

Not crossing 10s

$$268 - 4 = 264$$

Hundred	Ten	Ones
2	6	8
		4

$$343 + 6 = 349$$



Crossing 10s (Exchanging)

324		
300	20	4
300	10	14

$$316 + 8 = 324$$

316	8
300	16
10	8

$$324 - 8 = 316$$

### 3-digit and 2-digit numbers

Add and subtract tens

Hundred	Ten	Ones
4	5	1
	3	

$$451 + 3 \text{ tens} = 481 \quad (5 + 3 = 8)$$

$$451 - 4 \text{ tens} = 411 \quad (5 - 4 = 1)$$

Crossing 10s (Exchanging)

$$258 + 80 = 338$$

- Column method
- Count in 10s mentally
- Add 100, subtract 20

Crossing 10 and 100

$$\begin{array}{r} 368 \\ + 73 \\ \hline 441 \end{array}$$

### 3-digit numbers

Not crossing

$$679 - 351 = 328$$

Hundred	Ten	Ones
6	7	9
3	5	1

Crossing 10s (Exchanging)



$$\begin{array}{r} 269 \\ + 154 \\ \hline 423 \end{array}$$

514	?
268	

$$\begin{array}{r} 4101 \\ 514 \\ - 268 \\ \hline 246 \end{array}$$

### Add and Subtract 100s

$$284 + 300 = 584$$

Hundred	Ten	Ones
2	8	4
3		

## Estimate

Estimate by dividing the hundred into 250 and 225.

Estimate 10s (330, 340) between 325 and 350.



Estimate  $167 - 89$

Use near numbers  $170 - 90 = 80$

Near numbers:

413	279	521	782
400	300	500	800

## Check Answers

347
273
74

$347 - 74 = 273$  can be checked using

$$273 + 74 = 347$$

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



$154 + 269 = 423$	$269 + 154 = 423$
$423 - 154 = 269$	$423 - 269 = 154$

**Subtraction: Column Method**

<p>1</p> $\begin{array}{r} 453 \\ -348 \\ \hline \end{array}$ <p>Place the numbers one on top of the other, lining up the hundreds, tens and ones.</p>	<p>2</p> $\begin{array}{r} 453 \\ -348 \\ \hline \end{array}$ <p>Subtract the ones (note that the answer to <math>3 - 8</math> is negative).</p>
<p>3</p> $\begin{array}{r} 453 \\ -348 \\ \hline 5 \end{array}$ <p>Exchange a 10 from the 50 to give 13 ones. Subtract the ones: <math>13 - 8 = 5</math></p>	<p>4</p> $\begin{array}{r} 453 \\ -348 \\ \hline 05 \end{array}$ <p>Subtract the tens: <math>40 - 40 = 0</math></p>
<p>5</p> $\begin{array}{r} 453 \\ -348 \\ \hline 105 \end{array}$ <p>Subtract the hundreds: <math>400 - 300 = 100</math></p>	<p>6</p> $\begin{array}{r} 453 \\ -348 \\ \hline 105 \end{array}$ <p>Check your answer.</p>

**Addition: Column Method**

<p>1</p> $\begin{array}{r} 453 \\ +348 \\ \hline \end{array}$ <p>Place the numbers one on top of the other, lining up the hundreds, tens and ones.</p>	<p>2</p> $\begin{array}{r} 453 \\ +348 \\ \hline 1 \end{array}$ <p>Add the ones and write the answer.</p>
<p>3</p> $\begin{array}{r} 453 \\ +348 \\ \hline 1 \end{array}$ <p>Regroup any tens under the tens column.</p>	<p>4</p> $\begin{array}{r} 453 \\ +348 \\ \hline 01 \end{array}$ <p>Add the tens including any tens you have regrouped. Regroup any hundreds under the hundreds column.</p>
<p>5</p> $\begin{array}{r} 453 \\ +348 \\ \hline 801 \end{array}$ <p>Add the hundreds including any hundreds you have regrouped.</p>	<p>6</p> $\begin{array}{r} 453 \\ +348 \\ \hline 801 \end{array}$ <p>Check your answer.</p>

115 - 1 = 114

115 - 10 = 105

115 + 4 = 119

115 + 40 = 155

115 + 400 = 515

115 - 100 = 15



## Future Learning

### Year 4

- 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

### Year 6

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