Year 5 Addition and Subtraction

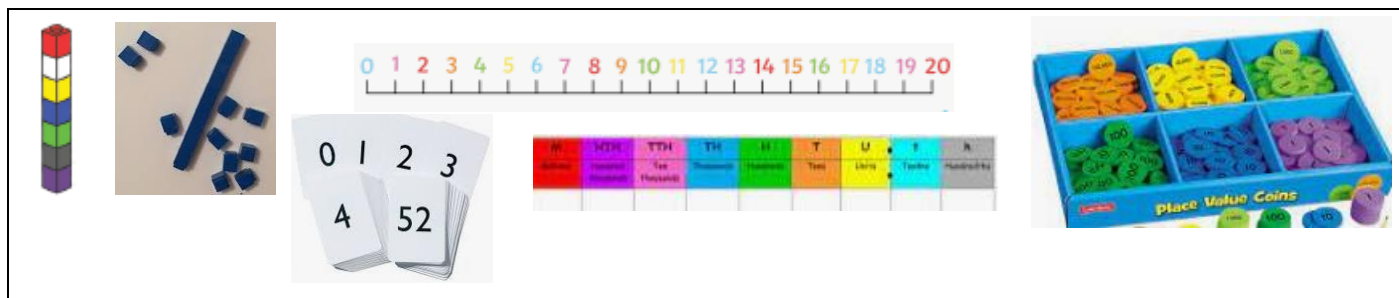| Prior Knowledge |
|---|
| Add and subtract numbers mentally, including:
-a three-digit number and 1s
-a three-digit number and 10s
-a three-digit number and 100s (Y3) |
| Add and subtract numbers with up to 4 digits using the formal written methods of columnar addition and subtraction where appropriate (Y4) |
| Estimate the answer to a calculation and use inverse operations to check answers (Y3&4) |
| Solve addition and subtraction two-step problems in contexts, deciding which operations and methods to use and why (Y4) |

addition and subtraction	Working Towards	Within	Expected	Above
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				

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 × b = b × 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
round	verb	alter (a number) to one less exact but more convenient for calculations

Resources

Addition

Place Value Grid: 3274 + 5601 = 8875

Column Method

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

$$\begin{array}{r} 45864 \\ +23497 \\ \hline 69361 \\ \hline \scriptstyle 1\,1\,1 \end{array}$$

Subtraction

Place Value Grid: 35 727 – 6313 = 29 414

TTh		2 ten thousands left
Th		5 thousands – 6 thousands cannot be done. Exchange ten thousand for ten thousands becoming 15 thousands – 6 thousands = 9 thousands
H		7 hundreds – 3 hundreds = 4 hundreds
T		2 tens – 1 ten = 1 ten
O		7 ones – 3 ones = 4 ones

Column Method

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

$$\begin{array}{r} \scriptstyle 6\;13\;1 \\ 35\cancel{7}\cancel{4}2 \\ -\;\;3476 \\ \hline 32266 \end{array}$$

Rounding to Estimate

41 635 + 7386 = 49 021

Round to ten:

41 630 + 7380 = 49 010

41 630 + 7390 = 49 020

41 640 + 7390 = 49 030

Rounding is not as accurate when both numbers are rounded up. A better estimate comes from "rounding" one down and one up.

Estimating on a Number Line

10 000   50 000

Use the inverse to check:

53 476

32 732   20 744

To check 53 476 – 32 732 = 20 744 use 32 732 + 20 744 = 53 476

Start with a number, subtract 409 and double. I end with 6264. To find the starting number use the inverse: halve, then add 409. Half of 6264 = 3132. 3132 + 409 = 3541. The starting number was 3541.

Using a Bar Model

The sum of two numbers is 25 567.
The difference is 1875.

25 567

1875

Subtract 1875 from 25 567 = 23 692.
Halve 23 692 to find smaller number = 11 846.
Add 1875 to find larger number = 13 721.

Year 5 Addition

Addition: 5-digit numbers

sum

1   85683
    +45978
_____

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

2   85683
    +45978
_____
      1

Add the ones and write the answer.

3   85683
    +45978
_____
      1
     1

Carry any tens to the tens column.

4   85683
    +45978
_____
     61
    11

difference

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

counting on

5   85683
    +45978
_____
    661
    11 1

Add the hundreds including any hundreds you have carried.

6   85683
    +45978
_____
    1661
   111

Add the thousands including any thousands you've carried.

7   85683
    +45978
_____
  131661
   1111

Add the tens thousands including any thousands you've carried.

8   85683
    +45978
_____
  131661
   1111

Check your answer.

counting back

minus   **less**

Rounding to Check Answers

Rounding is a great way to make a number simpler while keeping it close to the value that it was. Rounding can be used to help check answers to calculations.

For example: 3487 + 2725 = **6212**   3500 + 2700 = **6200**

Future Learning

Year 6
🔵   Solve addition and subtraction multi-step problems in contexts, deciding which operations and methods to use and why