

The aim is that children use mental methods when appropriate, but for calculations that they cannot do in their heads they use a quick and reliable (ie efficient) written method accurately and with confidence. **Note:** It is important that children's mental methods of calculation are practised alongside the efficient written methods for addition.

To add successfully children need to be able to:

- recall all addition pairs to $9 + 9$ and complements in 10;
- add mentally a series of one-digit numbers, such as $5 + 8 + 4$;
- add multiples of 10 (such as $60 + 70$) or of 100 (such as $600 + 700$) using the related addition fact, $6 + 7$, and their knowledge of place value;
- partition two-digit and three-digit numbers into multiples of 100, 10 and 1 in different ways.

To subtract successfully children need to be able to:

- recall all addition and subtraction fact to 20;
- Subtract multiples of 10 (such as $160 - 70$) using the related subtraction facts, $16 - 7$, and their knowledge of place value
- Partition two-digit and three digit numbers into multiples of one hundred, ten and one in different ways (eg partition 74 into $70 + 4$ or $60 + 14$).

To multiply successfully children need to be able to:

- recall multiplication facts up to 10×10 ;
- partition number into multiples of one hundred, ten and one;
- work out products such as 70×5 , 70×50 using the related fact 7×5 and their knowledge of place value;
- add two or more single-digit numbers mentally;
- add multiples of 10 (such as $60 + 70$) or of 100 (such as $600 + 700$) using the related addition fact, $6 + 7$, and their knowledge of place value;

To divide successfully children need to be able to:

- understand division as repeated subtraction;
- estimate how many times one number divides into another
- for example, how many sixes there are in 47 there are in 92;
- understand and use the vocabulary of division - for example in $18 \div 3 = 6$, the 18 is the dividend, the 3 is the divisor and the 6 is the quotient;
- partition two-digit and three-digit numbers into multiples of 100, 10 and 1;
- recall multiplication and division facts to 10×10 , recognise multiples of one-digit numbers and divide multiples of 10 or 100 by a single-digit number using their knowledge of division facts and place value.

Marine Park First School



YEAR 4

Written Methods for the Addition, Subtraction, Multiplication and Division of Whole Numbers

Glossary of Numeracy Terms

Complement:

A complement of a number is what needs to be added to it to make a specified value.

Eg, for tens-complements, if you had the number 7, you would need 3 more to make it a 10. So three is the tens-complement of 7, and 7 is the tens-complement of 3.

Number line:

A straight line in which the numbers are shown as marked points evenly spaced on the line.

Empty number line:

A line in which children place numbers themselves to help them solve a problem.

Partitioning:

Splitting a number into separate parts.

Eg 123 can be partitioned to $100+20+3$ or $100+23$.

Multiplication Grid:

A *grid* where the children partition the number and multiply each part separately.

Divisor:

A number used to divide another. In the equation $15 \div 3 = 5$, 3 is the divisor.

Addition

Addition of 3 digits to 3 digits.
Carrying digits are recorded above the line.

$$\begin{array}{r} \overset{1}{4}39 \\ +258 \\ \hline 697 \end{array}$$

Subtraction

Use vertical subtraction of 3 digit numbers. The bottom digits are a lower value than the upper digits.

Then further use of vertical subtraction of 3 digit numbers. Some of the bottom digits are of a higher value than the upper digits.

$$\begin{array}{r} 356 \\ -142 \\ \hline 214 \end{array}$$

$$\begin{array}{r} 2874 \\ -286 \\ \hline 88 \end{array}$$

Multiplication

Use of a multiplication grid to multiply a 2 digit number. The 2 digit number is partitioned and placed in the left hand column. Totals are placed and added in columns.

$$18 \times 7 =$$

| | | |
|----|-----|--|
| x | 7 | |
| 10 | 70 | |
| 8 | 56 | |
| | 126 | |

Division

Place multiples of divisor on number line, using large numbers and remainders.

$$81 \div 3 = 27$$



$$158 \div 6 = 26 \text{ r } 2$$

