

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.

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 all multiplication facts up to 10×10 ;
- partition number into multiples of one hundred, ten and one;
- work out products such as 70×5 , 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 in their heads, children need to be able to:

- understand division as repeated subtraction;
- estimate how many times one number divides into another - for example, how many fives there are in 35;
- 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 up 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 3

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 $100+23+48$.

Array:

An *Array* is an arrangement of a set of numbers or objects in rows and columns.

Divisor:

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

Addition

Column addition of two digits.

Unit column totals of 9 or less.

Tens column totals of 90 or less.

Then addition of 2 digits to 3 digits. Carrying digits are recorded above the line.

Use words 'carry ten' or 'carry one hundred', **not** 'carry one'.

$$\begin{array}{r} 73 \\ + 21 \\ \hline 94 \end{array}$$

$$\begin{array}{r} 145 \\ + 26 \\ \hline 171 \end{array}$$

Subtraction

Use of number line with larger numbers.

$$152 - 28 =$$

Multiplication

Use of a number line to multiply a 2 digit number.

$$30 \times 5 =$$

$$18 \times 5 = 10 \times 5 = 50$$

$$8 \times 5 = \frac{40}{90}$$

Division

Place multiples of divisor on number line, using larger numbers. Work towards division with remainders.

$$28 \div 5 = 5 \text{ r } 3$$