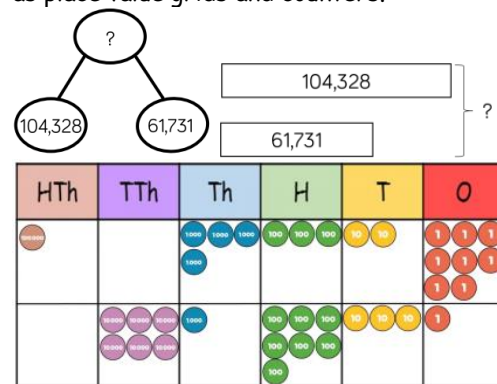**Year 5**

Children will extend the formal written method of addition to numbers with more than four digits, including decimal numbers with up to 3 decimal places.

1	0	4	3	2	8
+	6	1	7	3	1
1	6	6	0	5	9

3.65
+ 2.41
6.06

The children will revisit a variety of different concrete and pictorial representations of addition in order to deepen their understanding. They will use part-whole models and bar models, as well as place value grids and counters.
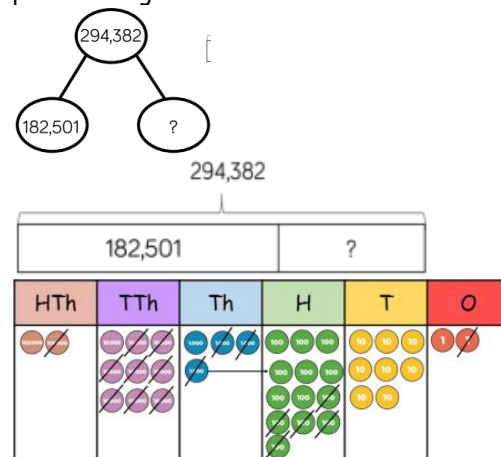

Children will extend the formal written method of subtraction to numbers with more than four digits and up to three decimal places. Their understanding of mathematical vocabulary, such as difference will be reinforced.

2	9	3	3	8	2
−	1	8	2	5	0	1
1	1	1	8	8	1

5.43
− 2.7
2.73

Blank number lines will also be used, where the numbers involved in the calculation are close together or near to multiples of 10, 100, to count on.

The children will revisit a variety of different concrete and pictorial representations of subtraction in order to deepen their understanding. They will use part-whole models and bar models, as well as place value grids and counters.


Children will further extend their understanding of multiplication and will be able to multiply a 3-digit number by a 2-digit number using the formal column method. Place value will be revisited throughout for the children to understand the value of each digit.

Th	H	T	O
	2	3	4
×		3	2
	4	6	8
7	0	2	0
7	4	8	8

The children will also use informal methods where appropriate, using jottings to show their method. They will draw upon known multiplication facts and use arrays.

The children will use a variety of different concrete and pictorial representations of this to support their understanding. This includes gattegno charts and representations using place value counters.
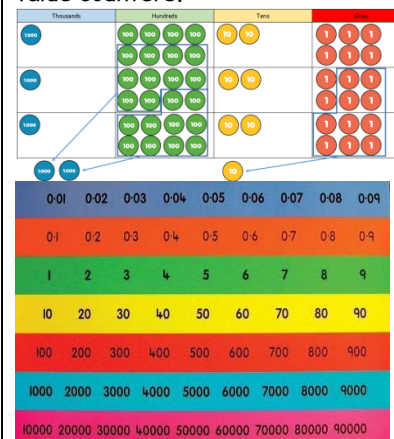

Children will continue to use the short division method to solve increasingly complex division problems, with increasingly larger numbers (4-digits divided by 1-digit).

Any remainders should be shown as integers, i.e. 14 remainder 2 or 14 r 2. When problem solving, children need to be able to make sensible decisions regarding remainders, dependent on the context of the question.

The children will regularly use known multiplication facts and their understanding of the inverse to solve more complex problems.

Place value charts can be used as a concrete and pictorial representation of this, to support the development of children's understanding in this area.
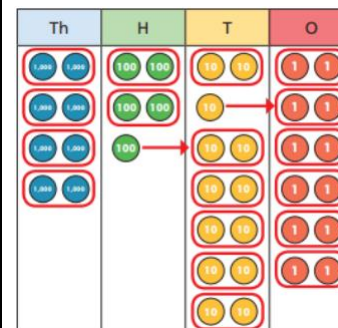
Year 6

Children should extend the formal method of addition to add several different numbers with a variety of different digits. The calculations can extend up to millions and up to 3 decimal places.

1	0	4	3	2	8
+	6	1	7	3	1
1	6	6	0	5	9

1

$$3.65$$
$$+ 2.41$$
$$6.06$$

1

Where appropriate, the children should use mental methods to solve addition questions, using jottings to record their answers.

Place value counters, bar models and part-whole models are used as both a concrete and pictorial representations of addition calculations.

Children should extend the formal written method of subtraction. They should be able to subtract numbers with a different number of digits and up to three decimal places.

2	9	³⁄ ¹3	8	2
−	1	8	2	5	0	1
1	1	1	8	8	1

Blank number lines will also be used, where the numbers involved in the calculation are close together or near to multiples of 10, 100, to count on.

The children should use their knowledge of the inverse to solve increasingly challenging problems with missing numbers.

_____ - 2,435 = 1,563

Place value counters, bar models and part-whole models are used as both a concrete and pictorial representations of subtraction calculations.

Children will further extend their understanding of multiplication and will be able to multiply a 4-digit number by a 2-digit number using the formal column method. Place value will be revisited throughout for the children to understand the value of each digit.

TTh	Th	H	T	O
	2	7	3	9
×			2	8
2	1	9	1	2
5	4	7	8	0
7	6	6	9	2

1

Using similar methods, they will be able to multiply decimals with up to two decimal places by a single digit number and then two-digit numbers, approximating first. They should know that the decimal points line up under each other.

As in Year 5, the children will use a variety of different concrete and pictorial representations of this to support their understanding. This includes gattegno charts and representations using place value counters.

Children will continue to use the short division written method to solve division problems.

Long division will be used to solve more challenging division problems, including dividing 3- and 4-digit numbers by a 2 digit number. Where remainders are present, children need to be able to make a sensible decision within the context of the question. Any remainders should be shown as an integer unless otherwise stated.

| 12 × 1 = 12 |
| 12 × 2 = 24 |
| 12 × 3 = 36 |
| 12 × 4 = 48 |
| 12 × 5 = 60 |
| 12 × 6 = 72 |
| 12 × 7 = 84 |
| 12 × 8 = 96 |
| 12 × 7 = 108 |
| 12 × 10 = 120 |

$$432 \div 12 = 36$$

This will extend to decimals with up to two decimal places.

Concrete and pictorial representations, similar to those used in year 5, can be used to support children with their understanding of division.

Arunside Progression in Calculations

By the end of year 6, children will have a range of calculation methods, mental and written. Selection will depend upon the numbers involved.

Children should not be made to go onto the next stage if:
1) they are not ready.
2) they are not confident.

Children should be encouraged to approximate their answers before calculating.

Children should be encouraged to consider if a mental calculation would be appropriate before using written methods.