## SCPS Calculation Guide

## Year 6

This guide shows illustrations and examples of the methods used to teach addition, subtraction, multiplication and division

## Year 6 Addition Add with more than 4 digits


$104,328+61,731=166,059$


Models and Representations

## Bar model

Part-whole model
Place Value Counters

Column Addition

Place value counters or plain counters on a
place value grid are the most effective concrete resources when adding numbers with more than 4 digits.

At this stage, children should be encouraged to work in the abstract, using the column method to add larger numbers efficiently.

Year 6 Subtraction Subtract numbers with more than 4 digits

$294,382-182,501=111,881$


## Models and Representations

## Bar model <br> Part-whole model <br> Place Value Counters

Column Subtraction

Place value counters or plain counters on a place value grid are the most effective concrete resource when subtracting numbers with more than 4 digits.

At this stage, children should be encouraged to work in the abstract, using column method to subtract larger numbers efficiently.

Year 6 Subtraction Subtract with up to three decimal places

$5.43-2.7=2.73$


## Models and Representations

## Bar model <br> Part-whole model <br> Place Value Counters

## Column Subtraction

Place value counters and plain counters on a place value grid are the most effective manipulative when subtracting decimals with 1,2 and then 3 decimal places.

Ensure children have experience of subtracting decimals with a variety of decimal places.

This includes putting this into context when subtracting money and other measures.

## Year 6 Multiplication

Multiply 4-digit numbers by 2-digit numbers

| TTh | Th | H | T | O |
| :---: | :---: | :---: | :---: | :---: |
|  | 2 | 7 | 3 | 9 |
| $\times$ |  |  | 2 | 8 |
| 2 | 1 | 9 | 1 | 2 |
| 5 | 4 | 7 | 8 | 0 |
| 7 | 6 | 6 | 9 | 2 |
| 2 |  |  |  |  |

$2,739 \times 28=76,692$

Models and Representations

Short Multiplication

When multiplying 4 - digits by 2 -digits, children should be confident in using the formal written method.

If they are still struggling with times tables, provide multiplication grids to support when they are focusing on the use of the method.

Consider where exchanged digits are placed and make sure this is consistent.

## Year 6 Division

Divide multi digits by 2-digits (short division)


$$
432 \div 12=36
$$

$7,335 \div 15=489$

|  | 0 | 4 | 8 | 9 |
| :---: | :---: | :---: | :---: | :---: |
| 15 | 7 | ${ }^{7} 3$ | $13_{3}$ | $13_{5}$ |


| 15 | 30 | 45 | 60 | 75 | 90 | 105 | 120 | 135 | 150 |
| :--- | :--- | :--- | :--- | :--- | :--- | :--- | :--- | :--- | :--- |

## Models and Representations

## Lists of Multiples

## Written Short Division

When children begin to divide up to 4-
digits by 2-digits, written methods become the most accurate as concrete and pictorial representations become less effective.

Children can write out multiples to support their calculations with larger remainders.

Children will also solve problems with remainders where the quotient can be rounded as appropriate.

## Year 6 Division

Divide multi digits by 2-digits (long division)

|  |  | 0 | 3 | 6 | $\begin{gathered} 12 \times 1=12 \\ 12 \times 2=24 \end{gathered}$ |  |
| :---: | :---: | :---: | :---: | :---: | :---: | :---: |
| 1 | 2 | 4 | 3 | 2 |  |  |
|  | - | 3 | 6 | 0 | ( $\times 6$ ) | $\begin{aligned} & 12 \times 4=48 \\ & 12 \times 5=60 \end{aligned}$ |
|  |  |  | 7 | 2 |  | $12 \times 6=72$ |
|  | - |  | 7 | 2 |  | $12 \times 7=84$ |
|  |  |  |  | 0 |  | $\begin{aligned} & 12 \times 8=96 \\ & 12 \times 7=108 \end{aligned}$ |
|  |  |  |  |  |  | $12 \times 10=120$ |

## $432 \div 12=36$

## $7,335 \div 15=489$

Models and Representations
Lists of Multiples

## Written Long Division

Children can also divide by 2-digit numbers using long division.

Children can write out multiples to support their calculations with larger remainders.

Children will also solve problems with remainders where the quotient can be rounded as appropriate.

## Year 6 Division

Divide multi digits by 2-digits (long division)
$372 \div 15=24 \mathrm{r} 12$

$1 \times 15=15$
$2 \times 15=30$
$3 \times 15=45$
$4 \times 15=60$
$5 \times 15=75$
$10 \times 15=150$

Models and Representations

## Lists of Multiples

Written Long Division

When a remainder is left at the end of a calculation, children can either leave it as a remainder or convert it to a fraction.

This will depend on the context of the question.

Children can also answer questions where the quotient needs to be rounded according to the context.

