Hackwood Primary Academy

Calculation & Fluency Policy – Progression in Subtraction

Last updated: 20th September 2022

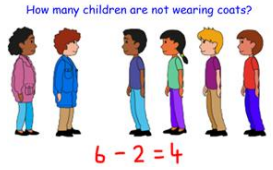
This document outlines the progression in addition strategies throughout our academies. Teaching staff should consider using previously taught written methods as part of visually representing mental methods later in a child's school journey. For example, using a number line (taught as a written method in much of KS1) as a way to visually represent mental methods in Key Stage 2.

It has been carefully put together in line with the National Curriculum (2014), the Government's non-statutory guidance for teaching mathematics (June 2020) and our existing approach to teaching mathematics. This document has been organised respective of age-related expectations and learning should still be differentiated appropriately.

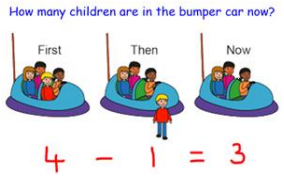
Year 1

In Year 1, pupils need to be able to write and interpret expressions and equations to represent partitioning (decomposing a number into parts) and reduction (decreasing a quantity by taking some away).

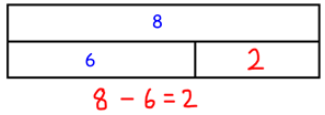
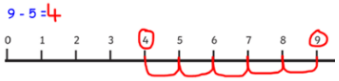
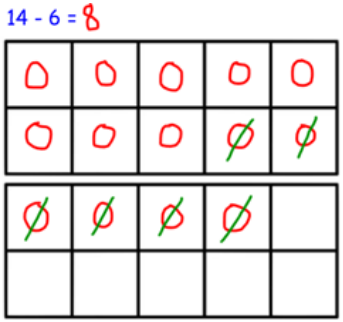
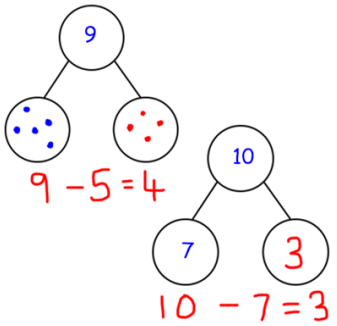
Partitioning



Reduction



Pupils should also learn to relate subtraction contexts and equations to mathematical diagrams such as bar models, number lines, tens frames with counters, and partitioning diagrams.

	Bar model	*Number line for counting single jumps*	*Tens frames*	*Part-whole model*
Picture examples				
Lesson videos				

Year 2

In Year 2, pupils will at first use manipulatives, such as tens frames, to understand the strategies for subtracting across 10. However, they should later be able to carry out these calculations mentally, using their fluency in complements to 10 and partitioning. Pupils are fluent in these calculations when they no longer rely on extensive written methods.

When subtracting within 100, pupils should be able to subtract multiples of 10 mentally, using their known addition facts. They should be able to demonstrate their reasoning either verbally or with manipulatives or drawings.

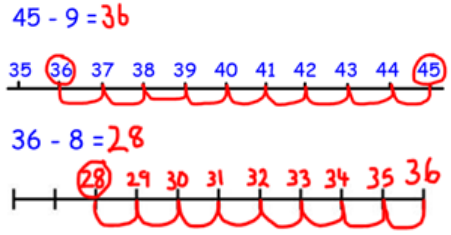
The semi-formal methods are used to help pupils learn how to record the steps for subtracting 2 digit numbers that are not multiples of 10 using informal written notation.

Pupils do not need to learn formal written methods for subtraction in Year 2, but column subtraction may be touched on as part of finding the difference in the semi-formal method.

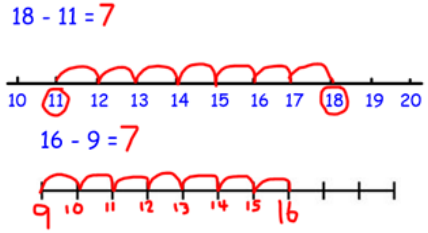
Picture examples

Number line subtraction

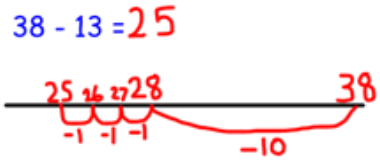
Counting back – less than 50
(with a marked line and then blank)



Counting on – less than 50
(with a marked line and then blank)

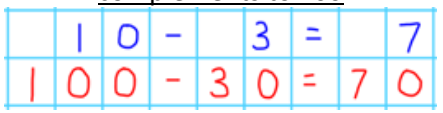


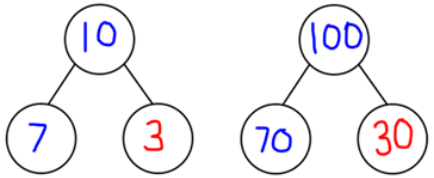
Subtracting teen numbers by partitioning
(subtracting the ten and then ones)



Using known facts – It's Nothing New!

Using complements to 10 to know complements to 100



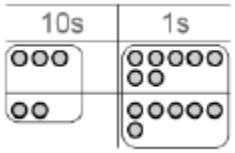


Our 'Fluent in Five' approach includes revisits of this from Spring 2 onwards

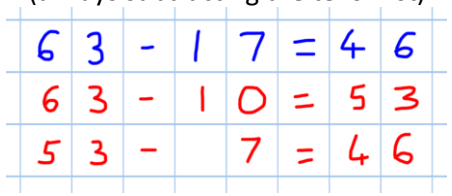
Fluent in Five – Year 2			
	Spring 2	Summer 1	Summer 2
Year 2	*It's Nothing New (Link back to Y1)* *10 + 10* *20 + 20* *30 + 30* *40 + 40* *50 + 50*	*It's Nothing New (Link back to Y1)* *60 + 60* *70 + 70* *80 + 80* *90 + 90* *100 + 100*	*It's Nothing New (Link back to Y1)* *10 + 90* *20 + 80* *30 + 70* *40 + 60*

Semi-formal written methods

Using visuals to deepen understanding of partitioning



Semi-formal
(always subtracting the tens first)



Lesson videos

Year 3

In Year 3, pupils first consolidate their strategies from Year 2 where they used a number line and the semi-formal method. However, this is then built upon as pupils should be able to subtract one three-digit number from another using column subtraction. They should be able to apply the column method to calculations where the subtrahend has fewer digits than the minuend, and they should be able to exchange through 0.

Pupils should make sensible decisions about how and when to use column subtraction. For example, when the minuend and subtrahend are very close together pupils may mentally find the difference, avoiding the need for column subtraction. In 402-398, pupils can see that 398 is 2 away from 400, and then there is 2 more to get to 402, so the difference is 4. This is more efficient than using column subtraction.

Picture examples	Semi-formal method	Column subtraction	Subtrahend and minuend with different amounts of digits	Regrouping through zero
Lesson videos				

Year 4

In Year 4, pupils should be able to subtract one four-digit number from another using column subtraction. They should be able to apply the method to calculations where the subtrahend has fewer digits than the minuend, and should be able to exchange through 0.

Pupils should make sensible decisions about how and when to use column subtraction. For example, when the minuend is a multiple of 1,000, they may transform to an equivalent calculation, avoiding the need to exchange through zeroes.

When calculating time (start time, end time and duration), our policy is to do so using a number line.

Picture examples	Column subtraction	Subtrahend and minuend with different amounts of digits	Regrouping through zero	Using alternative calculations to avoid regrouping through zero
Lesson videos				

Year 5

In Year 5, pupils should be able to subtract one five-digit number from another using column subtraction. In addition, they should be able to apply the column method to calculations with numbers up to 2 decimal places. This includes numbers with differing amounts of decimal places as well as exchanging through 0.

Pupils should make sensible decisions about how and when to use column methods. For example, when subtracting a decimal fraction from a whole number, pupils may be able to use their knowledge of complements, avoiding the need to exchange through zeros. For example, to calculate 8-4.85 pupils should be able to work out that the decimal complement to 5 from 4.85 is 0.15, and that the total difference is therefore 3.15.

When calculating time (start time, end time and duration), our policy is to do so using a number line.

Picture examples	Column subtraction	Subtrahend and minuend with different amounts of digits	Regrouping through zero	Subtracting decimals up to 2dp	Subtracting decimals using placeholders
Lesson videos					

Year 6

In Year 6, pupils should be able to subtract one six-digit number from another using column subtraction. In addition, they should be able to apply the column method to calculations with numbers up to 2 decimal places. This includes numbers with differing amounts of decimal places as well as exchanging through 0.

Pupils should make sensible decisions about how and when to use column methods. For example, when subtracting a decimal fraction from a whole number, pupils may be able to use their knowledge of complements, avoiding the need to exchange through zeros.

Picture examples	Column subtraction	Subtrahend and minuend with different amounts of digits	Regrouping through zero	Subtracting decimals up to 2dp	Subtracting decimals using placeholders
Lesson videos					