St Anne's Subtraction Calculation Policy

Date approved:	19th February, 2024
Date of review:	Summer Term 2025

Rationale:

This policy lays out the expectations for written calculations using subtraction and has been created to support the teaching of a mastery approach to mathematics in line with the National Curriculum and the White Rose scheme, which forms the framework of our curriculum through its long- and medium-term planning outline and small steps. This is underpinned by the use of models and images that support conceptual understanding and this policy promotes a range of representations to be used across EYFS, KS1 and KS2.

A Mastery Approach:

A mastery approach to learning involves the following five "big ideas" of effective maths teaching:

Coherence - a coherent learning progression offering deep and connected understanding

Representation and Structure concrete, pictorial and abstract representations are carefully structured to help pupils "see the maths"

Mathematical Thinking - looking for patterns and relationships, making connections, conjecturing, reasoning and generalising, communicating ideas using precise vocabulary

Fluency - - - efficient, accurate recall of key number facts and procedures, allowing pupils to move between different contexts and representations, choosing strategies

Variation - - - conceptual variation presents different representations of key features, while procedural variation presents different ways of proceeding through the learning journey (via scaffolding and support, etc)

Concrete – Pictorial – Abstract:

Mathematical understanding is developed through use of representations that are initially concrete (e.g. counters, multilink cubes, dienes, etc), and then pictorial (e.g. part-whole models, place value columns with images of counters in them, etc) to then facilitate abstract working (e.g. formal written methods).

This policy is a guide through an appropriate progression of representations. If at any point a pupil is struggling with the abstract, they should revert to familiar pictorial and/or concrete materials/representations as appropriate. As children move through the different stages, representations should be modelled alongside each other to ensure a secure understanding is maintained. Children should only move onto the abstract method when they have a secure understanding of the concept through an appropriate concrete and pictorial representation. This policy should be used in conjunction with the St Anne's Mathematics policy and St Anne's Mental Calculation policy. Teachers are also encouraged to refer to the NCETM Ready-To-Progress Criteria resources in ascertaining when children are ready to move on to new learning.

Although this policy sets out the main methods of mental and written calculations to be taught, it has been appended with a list of recommendations and effective practice guidance aimed at informing and enhancing teaching across all year groups. Many of these ideas come from the NCETM's Calculation Guidance document (published October 2015) and the White Rose Calculation Guidance (published in the academic year 2020-2021), which is intended to sit alongside a school's calculation policy.

Please note that while this list of representations is illustrative of the representations children will be exposed to and work with, it is not intended to be exhaustive and children will also encounter other representation methodologies that are not listed here.

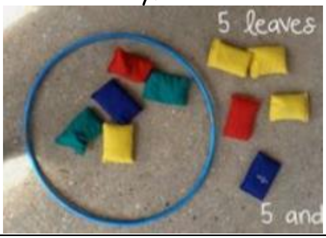
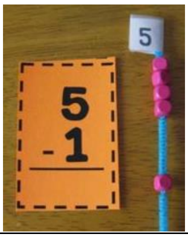
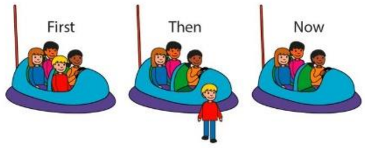
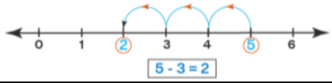
Vocabulary:

Children will continually recap vocabulary learned in previous years to ensure that their understanding and usage of the terminology is fully developed, broad and specific in application. Vocabulary from previous years is included in each year group's columns in black, while new vocabulary that may not have been previously encountered is in green. Teachers are encouraged to check this list of vocabulary at the beginning and end of a relevant unit to ensure that they are modelling the full breadth and depth of vocabulary to the children, and that the children are using it in their verbal and written responses accurately and confidently.

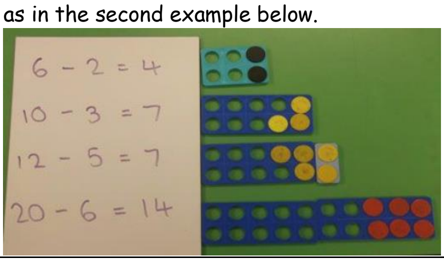
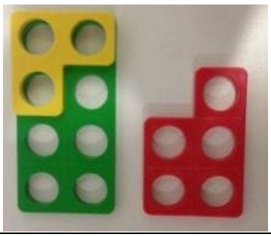
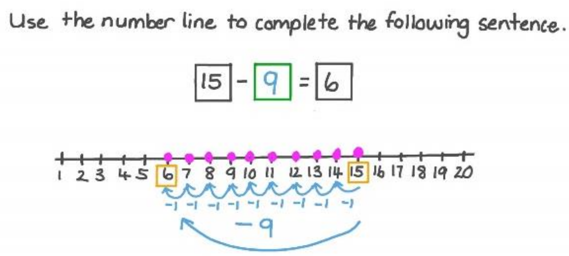
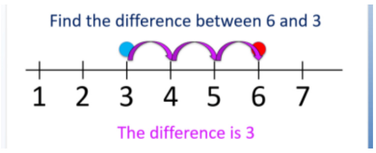
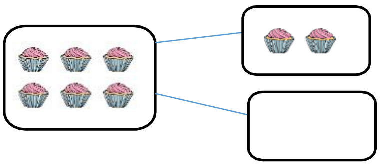
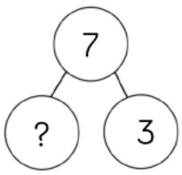
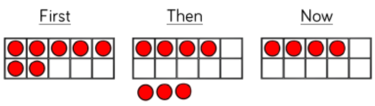
Please see appendix 4 for notes on precise vocabulary, and for a comprehensive glossary, please see the separate document "NCETM Maths Glossary KS1-KS3" which is saved in PDF format with our calculation policies in the shared area.

Contents:

Subtraction in Reception

National Curriculum **Objectives and Strategies**	**Vocabulary**	**Example Representation Methodologies**
Children will… Take away a single number. Find one less than a given number. Recognise some relationships between numbers and patterns. Count backwards in ones.	take (away), leave, how many are left/left over? how many have gone? one less, two less, ten less, how many fewer is… than…? difference between, is the same as	**Concrete:** Children use physical objects, counters, cubes, etc to show how objects can be taken away. 
		Pictorial: Children cross out drawn objects to show what has been taken away.  Children use first, then and now processes to subtract from groups.  Children use number lines to support subtraction. 
		Abstract: ***See Appendix 1 for further guidance on best practice.*** Although number sentences are recorded in the concrete and pictorial methods, children are introduced to them on their own while encouraging them to mentally take away ones. $7 - 3 = 4$ "Put 7 in your head, then count back 3. What number are you at? Use your fingers to help."

Subtraction in Year 1

National Curriculum Objectives and Strategies	Vocabulary	Example Representation Methodologies
Children will… Read, write and interpret mathematical statements involving minus (–) and equals (=) signs. Represent and use number bonds and related subtraction facts within 20. Add and subtract 1-digit and 2-digit numbers to 20, including zero. Solve 1-step problems that involve addition and subtraction, using concrete objects and pictorial representations, and missing number problems such as 7 = _ - 9.	take (away), leave, how many are left/left over? how many have gone? one less, two less, ten less, how many fewer is… than…? difference between, is the same as, **minus, subtract, how much less is…? half, halve, equals,**	**Concrete:** Children represent the larger number (minuend) in their subtraction. They then move the beads along the bead string as they count backwards in ones.  Children use counters and move them away from the group as they take them away, counting backwards as they go.  Children can use Numicon to represent the larger number (minuend) and then place counters over the dots to represent removing the given amount (subtrahend), leaving the difference represented by the remaining dots, as in the first example below. This can also be done by laying Numicon on top of each other, which may be more intuitive, as in the second example below.  
		Pictorial: Children use number lines to count back when finding the difference:  This reinforces that subtraction is distinct from addition. Children can also use number lines to count on to find the difference as long as the above understanding is clearly and fully embedded:  Children use part-whole diagrams, Numicon representations and tens frames, including the first, then, now process, to understand subtraction:    
		Abstract: ***See Appendix 1 for further guidance on best practice.*** Children record simple subtraction number sentences, such as 13 – 4 = 9. "Put 13 in your head, count back 4. What number are you at? Use your fingers to help."

Subtraction in Year 2

National Curriculum Objectives and Strategies	Vocabulary	Example Representation Methodologies

National Curriculum Objectives and Strategies

Children will…

Solve problems with addition and subtraction, using concrete objects and pictorial representations, including those involving numbers, quantities and measures, applying their increasing knowledge of mental and written methods.

Recall and use addition and subtraction facts to 20 fluently, and derive and use related facts up to 100.

Subtract numbers using concrete objects, pictorial representations, and mentally, including:
a 2-digit number and ones,
a 2-digit number and tens, and
two 2-digit numbers
adding three 1-digit numbers.

Show that addition of two numbers can be done in any order (commutative) and subtraction of one number from another cannot.

Recognise and use the inverse relationship between addition and subtraction and use this to check calculations and solve missing number problems.

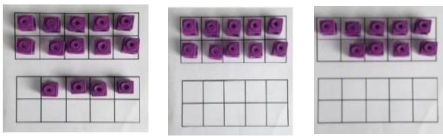
Vocabulary

subtract, subtraction, take (away), leave, how many are left/left over? how many have gone? one less, two less, ten less, **one hundred less,** how many or fewer is… than…? difference between, is the same as, minus, subtract, how much less is…? half, halve, equals, **tens boundary, regroup, exchange, inverse**

Example Representation Methodologies

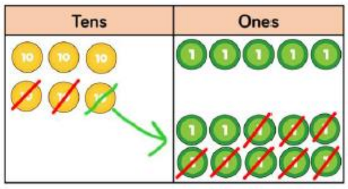
Concrete:

Children use tens frames and counters/dienes to represent subtraction:



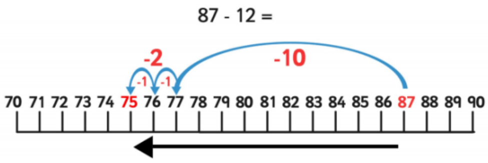
They also use Numicon to support:

Place value counters and charts are also key elements at this stage:



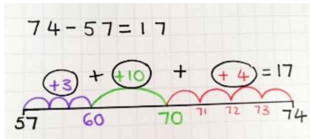
Pictorial:

Children use number lines to count back when finding the difference:

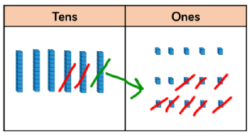


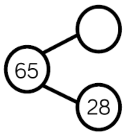
This reinforces that subtraction is distinct from addition.

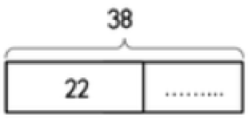
Children can also use number lines to count on to find the difference as long as the above understanding is clearly and fully embedded:



Children also use place value columns, bar models and part-whole models to explore subtraction and difference:



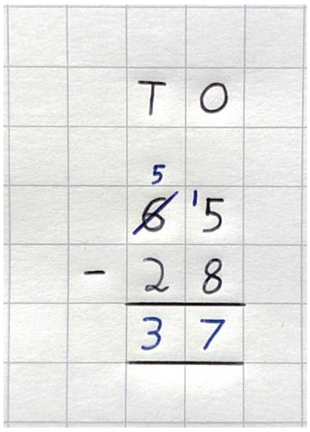




Abstract:

See Appendix 1 for further guidance on best practice.

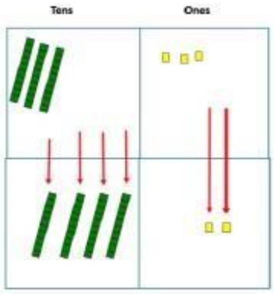
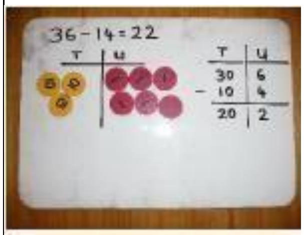
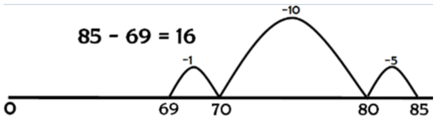
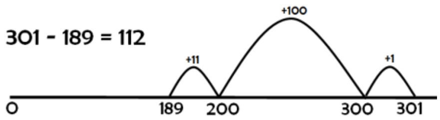
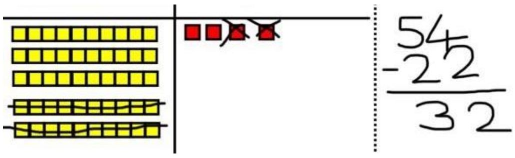
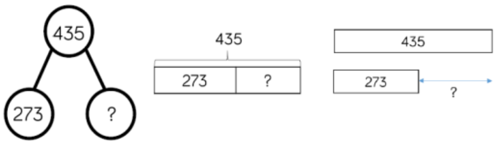
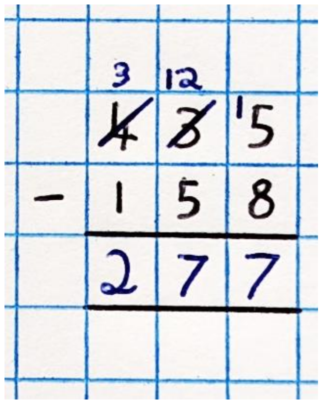
Children will use a formal columnar algorithm, initially introduced via appropriate concrete and/or pictorial representations in place value columns, to subtract 2-digit numbers:



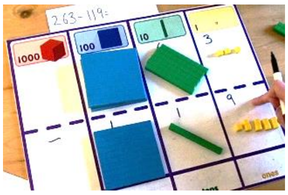
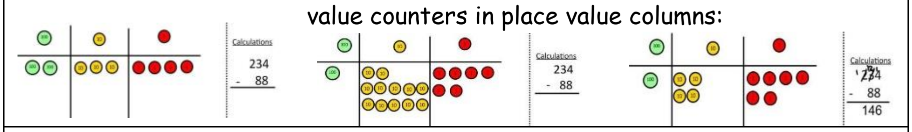
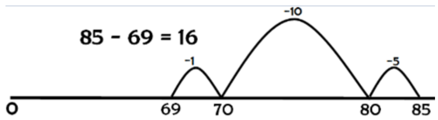
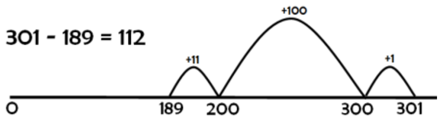
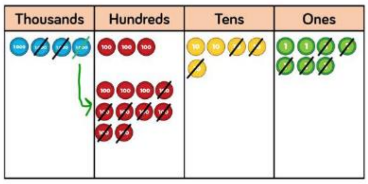
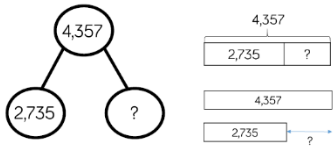
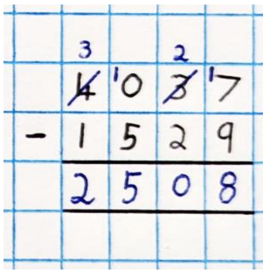
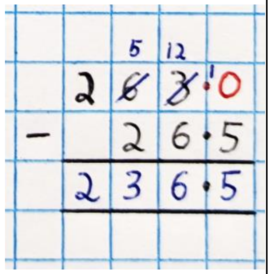
Children should not begin to use a compact column method before having a secure understanding of the process of subtraction, partitioning and using place value columns.

Children should be taught when it is best to use a mental method for straightforward calculations, when to use number lines or other informal jottings for relatively straightforward ones, and when to use column methods for the more complex calculations that require it.

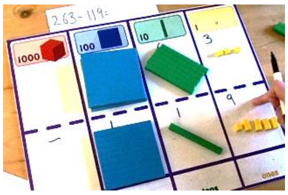
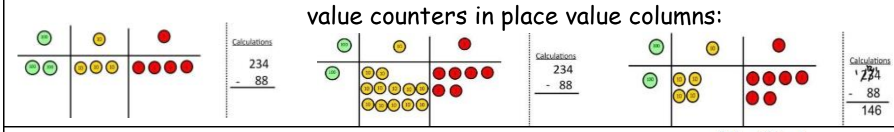
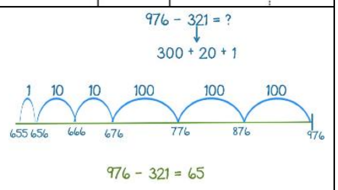
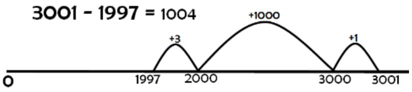
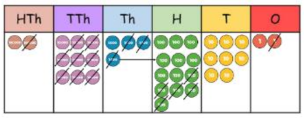
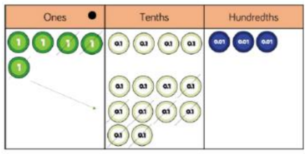
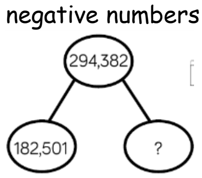
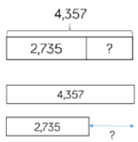
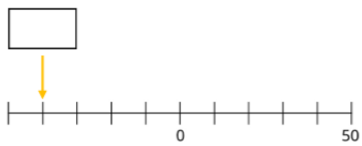
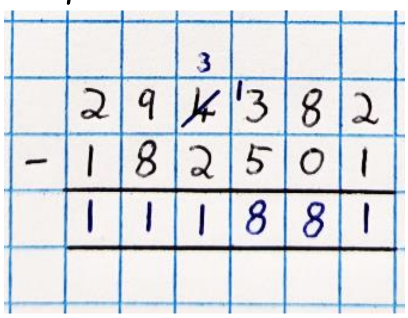
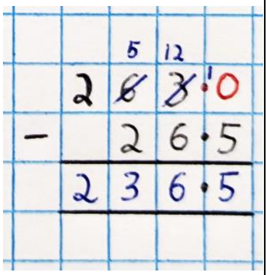
Subtraction in Year 3

National Curriculum Objectives and Strategies	Vocabulary	Example Representation Methodologies
Children will… Solve problems, including missing number problems, using number facts, place value, and more complex subtraction. Subtract numbers mentally, including: a 3-digit number and ones, a 3-digit number and tens, and a 3-digit number and hundreds. Subtract numbers with up to three digits, using formal written methods of columnar addition and subtraction. Estimate the answer to a calculation and use inverse operations to check answers.	subtract, subtraction, take (away), leave, how many are left/left over? how many have gone? one less, two less, ten less, one hundred less, how many or fewer is… than…? difference between, is the same as, minus, subtract, how much less is…? half, halve, equals, tens boundary, **hundreds boundary, ** regroup, exchange, inverse, **minuend, subtrahend, decrease, inverse**	**Concrete:**  Children will use Base 10 to make the minuend (bigger number) then take the subtrahend (smaller number) away:  Children will use counters on place value grids to show understanding of partitioning, again always starting by making the minuend first. **Pictorial:** Children use number lines to count back when finding the difference:  This reinforces that subtraction is distinct from addition. Children can also use number lines to count on to find the difference as long as the above understanding is clearly and fully embedded:  Children draw the Base 10 or place value counters alongside the written calculation using place value columns:  Children also use bar models and part-whole models to explore subtraction and difference:  **Abstract:** ***See Appendix 1 for further guidance on best practice.***  Children will use a formal columnar algorithm, initially introduced via appropriate concrete and/or pictorial representations in place value columns, to subtract 3-digit numbers: Children should not begin to use a compact column method before having a secure understanding of the process of subtraction, partitioning, exchanging/regrouping, and using place value columns. Children should be taught when it is best to use a mental method for straightforward calculations, when to use number lines or other informal jottings for relatively straightforward ones, and when to use column methods for the more complex calculations that require it.

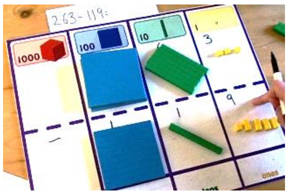
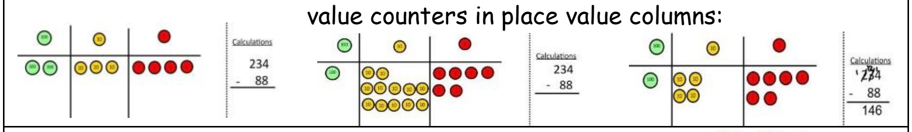
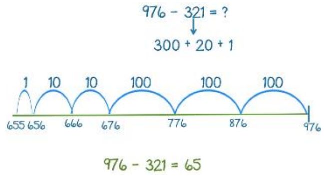
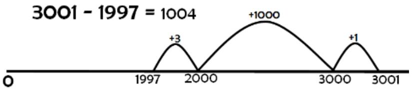
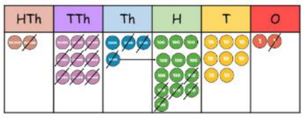
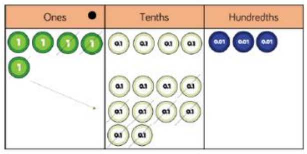
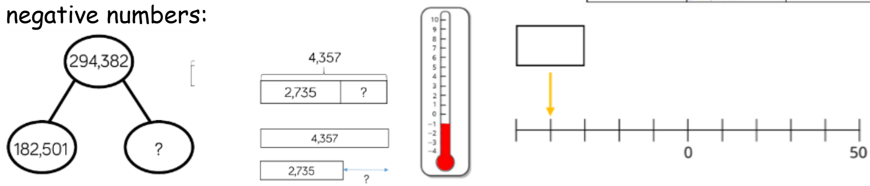
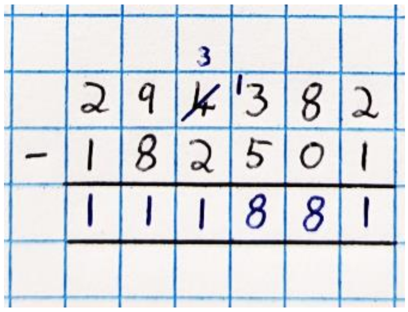
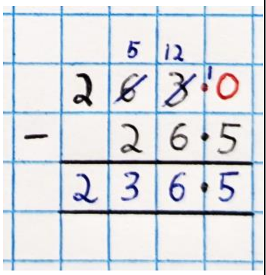
Subtraction in Year 4

National Curriculum Objectives and Strategies	Vocabulary	Example Representation Methodologies
Children will… Subtract numbers with up to 4 digits using the formal written method of columnar subtraction. Where appropriate, estimate and use inverse operations to check answers to a calculation. Solve addition and subtraction two-step problems in contexts, deciding which operations and methods to use and why.	subtract, subtraction, take (away), leave, how many are left/left over? how many have gone? one less, two less, ten less, one hundred less, how many or fewer is… than…? difference between, is the same as, minus, subtract, how much less is…? half, halve, equals, tens boundary, hundreds boundary, **ones boundary, tenths boundary (etc),** regroup, exchange, inverse, minuend, subtrahend, decrease, inverse	**Concrete:** Children will use Base 10 to make the minuend (bigger number) then take the subtrahend (smaller number) away:  Then they will move on to doing this using place value counters in place value columns: 
		Pictorial: Children use number lines to count back when finding the difference:  This reinforces that subtraction is distinct from addition. Children can also use number lines to count on to find the difference as long as the above understanding is clearly and fully embedded:  Children draw the Base 10 or place value counters alongside the written calculation using place value columns:  Children also use bar models and part-whole models to explore subtraction and difference: 
		Abstract: ***See Appendix 1 for further guidance on best practice.*** Children will use a formal columnar algorithm, initially introduced via appropriate concrete and/or pictorial representations in place value columns, to subtract numbers with up to 4 digits:  Children should not begin to use a compact column method before having a secure understanding of the process of subtraction, partitioning, exchanging/regrouping, and using place value columns. Children should be taught when it is best to use a mental method for straightforward calculations, when to use number lines or other informal jottings for relatively straightforward ones, and when to use column methods for the more complex calculations that require it.  Children will also use compact column method for decimal numbers and to solve problems (e.g. in the context of money):

Subtraction in Year 5

National Curriculum Objectives and Strategies	Vocabulary	Example Representation Methodologies
Children will… Subtract whole numbers with more than 4 digits, including using formal written method (columnar subtraction). Subtract numbers mentally with increasingly large numbers. Use rounding to check answers to calculations and determine, in the context of a problem, levels of accuracy. Solve addition and subtraction multi-step problems in contexts, deciding which operations and methods to use and why. Use negative numbers in context, and calculate intervals across zero.	subtract, subtraction, take (away), leave, how many are left/left over? how many have gone? one less, two less, ten less, one hundred less, how many or fewer is… than…? difference between, is the same as, minus, subtract, how much less is…? half, halve, equals, tens boundary, hundreds boundary, **thousands boundary (etc),** ones boundary, tenths boundary (etc), regroup, exchange, inverse, minuend, subtrahend, decrease, inverse, **negative**	**Concrete:** Children will use Base 10 to make the minuend (bigger number) then take the subtrahend (smaller number) away:  Then they will move on to doing this using place value counters in place value columns:  **Pictorial:** Children use number lines to count back when finding the difference. This reinforces that subtraction is distinct from addition. Children can also use number lines to count on to find the difference as long as the above understanding is clearly and fully embedded:   Children draw the Base 10 or place value counters alongside the written calculation using place value columns:   Children also use bar models and part-whole models to explore subtraction and difference, as well as number lines and scales that show negative numbers:     **Abstract:** ***See Appendix 1 for further guidance on best practice.*** Children will use a formal columnar algorithm, initially introduced via appropriate concrete and/or pictorial representations in place value columns, to subtract numbers with more than 4 digits:  Children should not begin to use a compact column method before having a secure understanding of the process of subtraction, partitioning, exchanging/regrouping, and using place value columns. Children should be taught when it is best to use a mental method for straightforward calculations, when to use number lines or other informal jottings for relatively straightforward ones, and when to use column methods for the more complex calculations that require it. Children will also use compact column method for decimal numbers and to solve problems (e.g. in the context of money): 

Subtraction in Year 6

National Curriculum Objectives and Strategies	Vocabulary	Example Representation Methodologies
Children will… Solve addition and subtraction multi-step problems in contexts, deciding which operations and methods to use and why. Solve problems involving addition, subtraction, multiplication and division. Use negative numbers in context, and calculate intervals across zero.	subtract, subtraction, take (away), leave, how many are left/left over? how many have gone? one less, two less, ten less, one hundred less, how many or fewer is… than…? difference between, is the same as, minus, subtract, how much less is…? half, halve, equals, tens boundary, hundreds boundary, thousands boundary (etc), ones boundary, tenths boundary (etc), regroup, exchange, inverse, minuend, subtrahend, decrease, inverse, negative	**Concrete:** Children will use Base 10 to make the minuend (bigger number) then take the subtrahend (smaller number) away:  Then they will move on to doing this using place value counters in place value columns:  **Pictorial:** Children use number lines to count back when finding the difference. This reinforces that subtraction is distinct from addition. Children can also use number lines to count on to find the difference as long as the above understanding is clearly and fully embedded:   Children draw the Base 10 or place value counters alongside the written calculation using place value columns:   Children also use bar models and part-whole models to explore subtraction and difference, as well as number lines and scales that show negative numbers:  **Abstract:** ***See Appendix 1 for further guidance on best practice.*** Children will use a formal columnar algorithm, initially introduced via appropriate concrete and/or pictorial representations in place value columns, to subtract numbers with more than 4 digits:  Children should not begin to use a compact column method before having a secure understanding of the process of subtraction, partitioning, exchanging/regrouping, and using place value columns. Children should be taught when it is best to use a mental method for straightforward calculations, when to use number lines or other informal jottings for relatively straightforward ones, and when to use column methods for the more complex calculations that require it. Children will also use compact column method for decimal numbers and to solve problems (e.g. in the context of money): 

Appendix 1 - Notes on Best Practice with Written Methods

NCETM Guidance on Number Lines

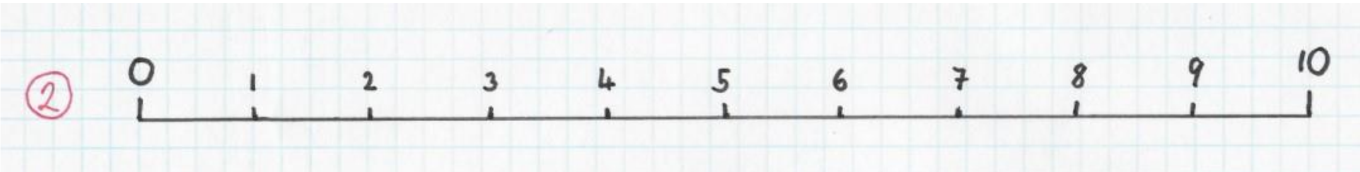
(From https://www.ncetm.org.uk/features/five-tips-for-using-number-lines-in-key-stage-1/)

1. Finding the midpoint on a blank number line

Our first number line is a straight line with zero at one end and ten at the other. Could your pupils place the numbers one to nine on the straight line? It is likely numbers will be crowded together at either end of the line because the children have yet to develop the spatial reasoning skills needed. Asking pupils to find the midpoint (before asking them to place all the numbers) allows us to draw the children's attention to the fact that numbers are evenly spaced and to reinforce the concept of five as a midpoint.

A number line, or strip of paper folded in half, can be used to give children the opportunity to find the midpoint. Children can also create lines of different lengths on the playground with chalk or skipping ropes, and practise placing the class teddy on the midpoint. This activity provides a great opportunity to develop classroom talk and spatial language, such as 'in the middle' and 'equally spaced'.

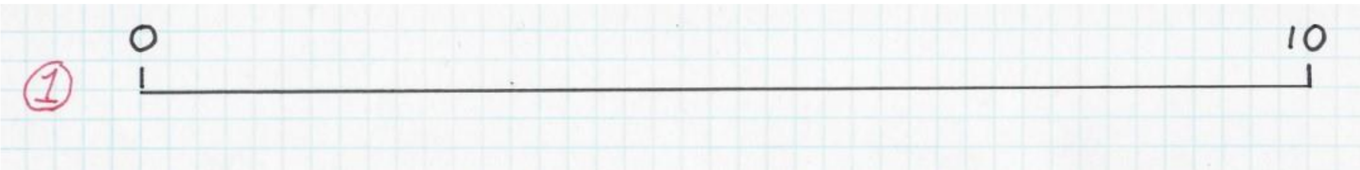
2. Reasoning with a completed zero to ten number line



You could start this activity by revisiting the idea of the midpoint and ask children how they know what the midpoint is, providing a further opportunity for children to practise spatial language. However, the beauty of this number line is the opportunities it provides to fully explore the linear nature of the number system and to reason about the location of numbers within it.

One way to start this exploration is through games of true or false using the inequality symbols; for example, seven is greater than eight. Can the children prove their answer using the number line? Another game that could be played is Guess My Number. Can children use clues about a number's location on the number line to find the number? These games bring the children back to the spatial language of 'greater than' and 'less than'. They are asked to justify their answers, whilst their attention is also drawn to where these numbers fit on the number line.

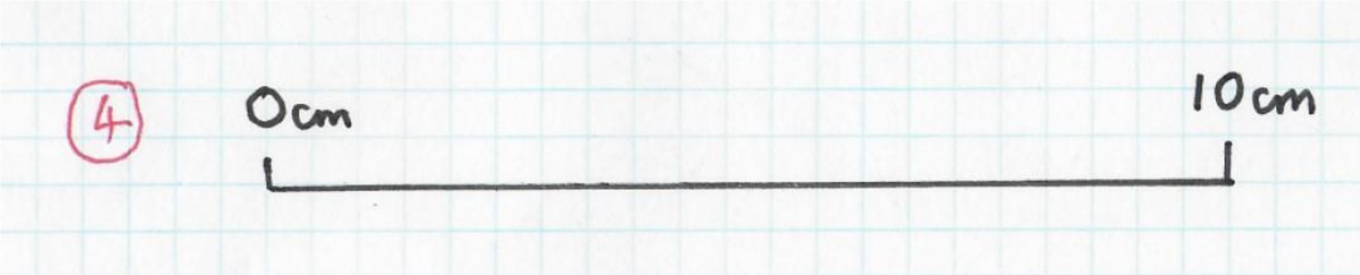
3. Placing numbers on a blank number line



Returning to the activity we started with, asking children to place the numbers onto the line allows us to revisit the concept of the midpoint and builds on our last activity. Children should have a better sense of being able to place the numbers evenly, but the main teaching point here is that they should be able to reason where their numbers sit in relation to each other.

You may ask them to compare their number line with a friend's number line, which provides an opportunity to ask which is better and why. Whose numbers are more evenly spaced? Have they correctly found the midpoint? At this stage, teachers can assess whether children are placing their number between or on the intervals.

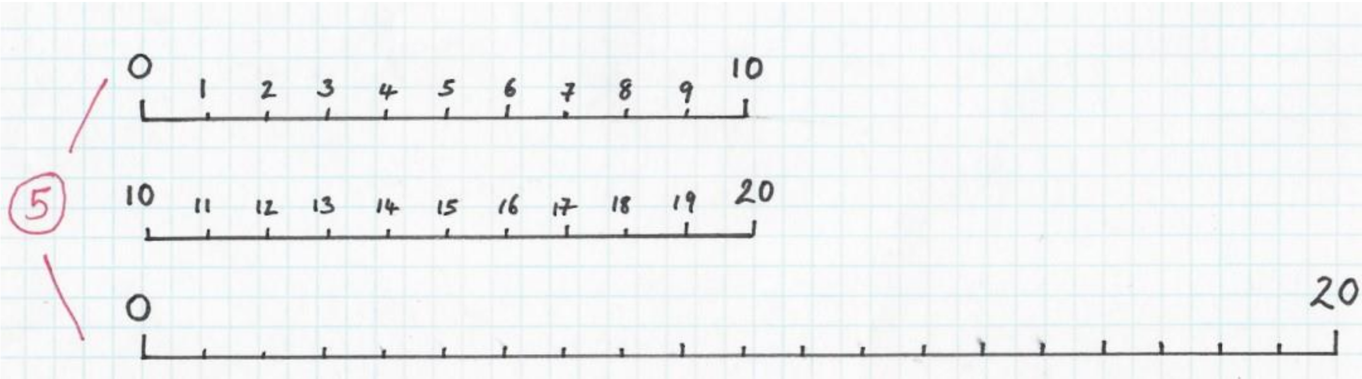
4. Using a number line as a measuring tool



This time we adjust the blank number line slightly by adding measures. Measure operates within our linear number system so a ruler is, in essence, a number line. Armed with their 10cm number line strip, can the children find objects shorter than 10cm or longer than 10cm?

By reminding children to line up their strip of paper so that 0cm lies at one end of the object, we are developing accuracy, which children will need when they start using a ruler. Can children find the midpoint? We can move on by asking them to find objects longer than 5cm or shorter than 10cm. We may even start to estimate and reason about where numbers fit in the linear system by asking where 7cm might be. Can children reason that it is between 5cm and 10cm? Where would they place it?

5. Comparing values on two completed number lines—zero to twenty



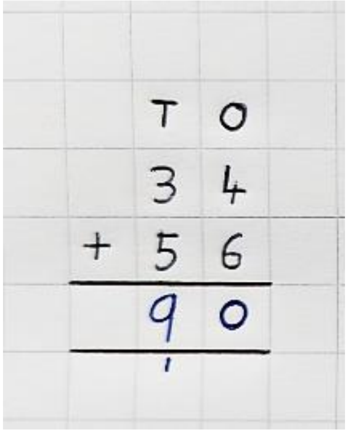
Comparing number lines encourages children to notice what is the same and what is different about numbers zero to 10 and numbers 10 to 20. With the number lines placed one on top of each other and lined up, ask children what they notice. Draw children's attention to the fact that where we have 1, on the next number line we have 10 and 1, which we call 11. Where we have 2, on the next number line we have 10 and 2, which we call 12 and so on. This enables children to see the relationship between the numbers that come after 10 and the numbers that come before 10 and the pattern of the number system.

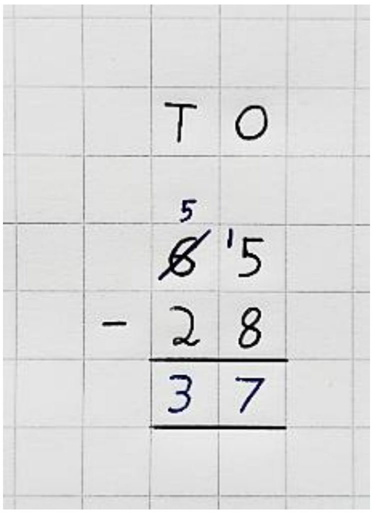
The children can discuss what is the same and what is different about the midpoints of both number lines. Will the midpoint always feature a five? By introducing a new number line, placed underneath, with the numbers zero to 20 placed at either end, children will identify that our midpoint is now 10.

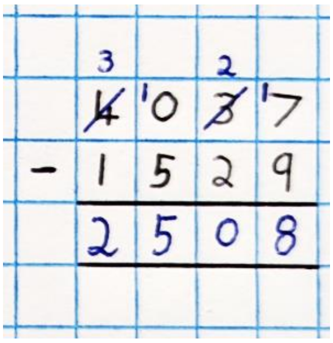
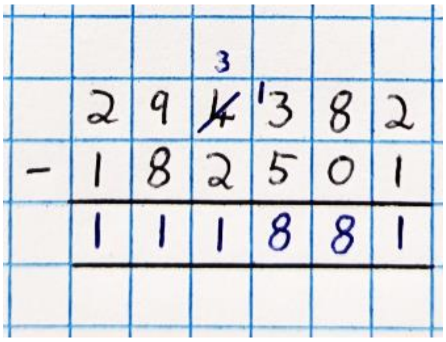
This activity enables children to explore '10 and a bit' numbers—the tricky teen numbers—and how they fit into the linear number system. This can be a 'wow' moment for children, as they start to make those connections, recognise those patterns, and begin to understand how they repeat into infinity.

Column Methods

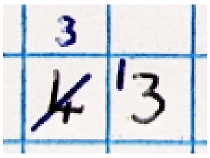
In KS1, it is best for children to always have the column headers (T and O) above the digits to ensure understanding. These can go directly above the digits in addition, whereas a space is needed between them in subtraction. In KS2, this is not usually necessary, but children who wish to add the headers can do so. This is not to be generally encouraged, as it slows down calculation time.

KS1: 

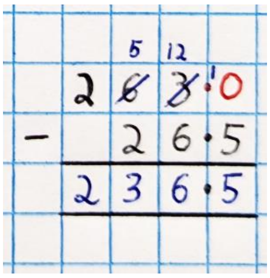


KS2: 


All digits are to be written with one digit per square. Ensure that the minuend and subtrahend are written with the ones columns aligned, and that the lines are drawn with a ruler. For subtraction, as the difference cannot be larger than the minuend and subtrahend, we do not extend the lines by an extra column as we do in addition. This reinforces the idea that subtraction results in a smaller difference (in the case of positive integers). Ensure that children do not continue their lines past the ones column past where the decimal point would go – this is essential for avoiding misconceptions.



When writing exchanges above, ensure that children write very small, clear digits in the middle-top of the square in the appropriate column to show how many remain in a column after an exchange has taken place (the blue digit 3, right), and cross out the previous value in that column with one straight, diagonal line that does not extend out of the square the digit is in. Children then show the exchanged value that moves along to the smaller column as a small digit in the top-left of that square (the blue digit 1, right). This ensures that they do not confuse them with other digits in the method. A sharp pencil is essential for this. Encourage children to sharpen them habitually at the beginning of each lesson.



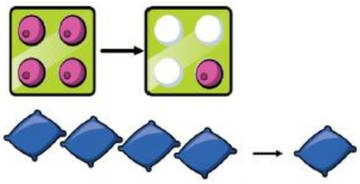
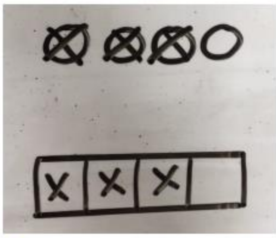
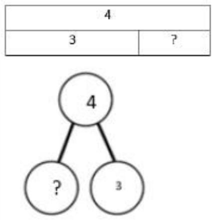
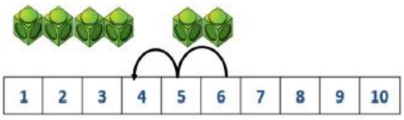
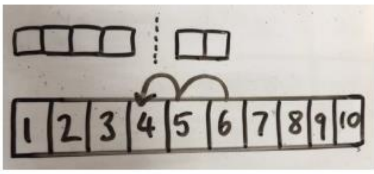
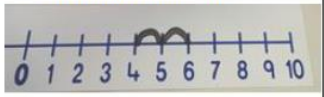
When using decimal numbers, the decimal point should always be placed in the centre of a line between two squares, not at the bottom and not in a square of its own on the page. This ensures that children do not treat it as an extra place value column between the ones and the tenths, and also that it is not confused with a full stop, as below. When minuends and subtrahends have different numbers of decimal places, children should put in placeholder 0s to ensure consistency and avoid confusion.

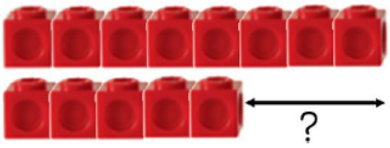
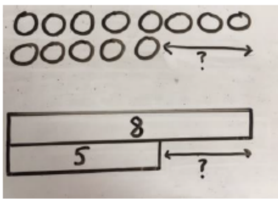
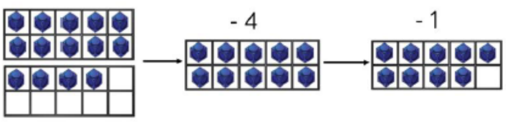
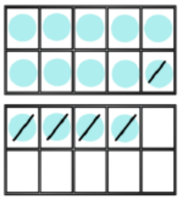
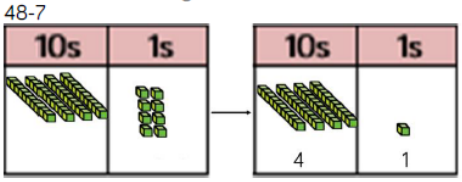
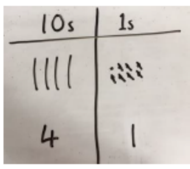
Appendix 2 – White Rose Calculation Guidance

Below is a table taken from the White Rose Calculation guidance which shows how the concrete-pictorial-abstract approach can be used as a progression in learning of the concept of subtraction.

Calculation policy: Subtraction

Key language: take away, less than, the difference, subtract, minus, fewer, decrease.

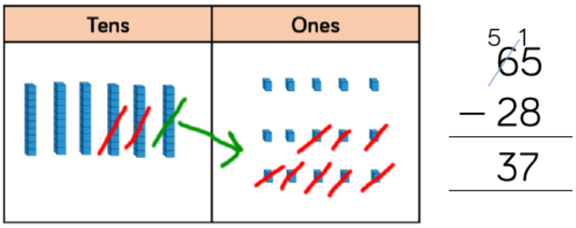
Concrete	Pictorial	Abstract
Physically taking away and removing objects from a whole (ten frames, Numicon, cubes and other items such as beanbags could be used). 4 – 3 = 1 	Children to draw the concrete resources they are using and cross out the correct amount. The bar model can also be used. 	**4 - 3 =** ☐ **= 4 - 3** 
Counting back (using number lines or number tracks) children start with 6 and count back 2. 6 – 2 = 4 	Children to represent what they see pictorially e.g. 	Children to represent the calculation on a number line or number track and show their jumps. Encourage children to use an empty number line  

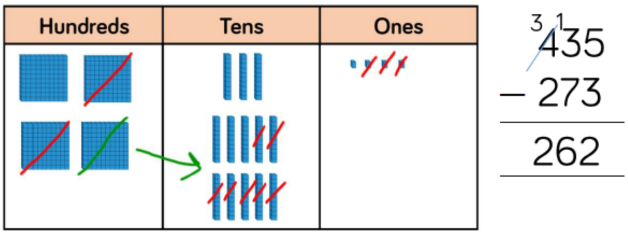
Finding the difference (using cubes, Numicon or Cuisenaire rods, other objects can also be used). Calculate the difference between 8 and 5. 	Children to draw the cubes/other concrete objects which they have used or use the bar model to illustrate what they need to calculate. 	Find the difference between 8 and 5. 8 – 5, the difference is ☐ Children to explore why 9 - 6 = 8 – 5 = 7 – 4 have the same difference.
Making 10 using ten frames. 14 – 5 	Children to present the ten frame pictorially and discuss what they did to make 10. 	Children to show how they can make 10 by partitioning the subtrahend. 14 - 5 = 9 4 1 14 – 4 = 10 10 – 1 = 9
Column method using base 10. 48-7 	Children to represent the base 10 pictorially. 	Column method or children could count back 7. 4 8 – 7 4 1

Appendix 3 – White Rose Guidance on the Benefits of Different Representation Methodologies

The benefits of these methods explained by White Rose Mathematics (taken 2021 from White Rose subtraction calculation policy).

Base 10/Dienes (subtraction)



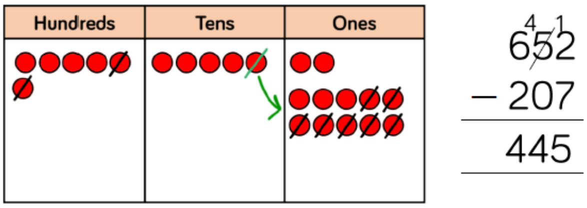


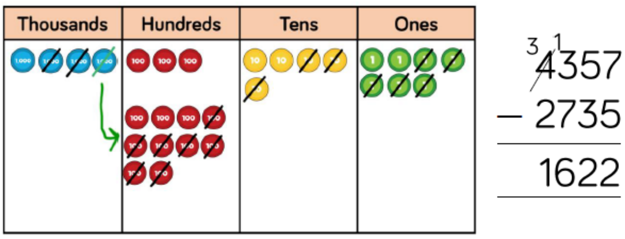
Benefits

Using Base 10 or Dienes is an effective way to support children's understanding of column subtraction. It is important that children write out their calculations alongside using or drawing Base 10 so they can see the clear links between the written method and the model.

Children should first subtract without an exchange before moving on to subtraction with exchange. When building the model, children should just make the minuend using Base 10, they then subtract the subtrahend. Highlight this difference to addition to avoid errors by making both numbers. Children start with the smallest place value column. When there are not enough ones/tens/hundreds to subtract in a column, children need to move to the column to the left and exchange e.g. exchange 1 ten for 10 ones. They can then subtract efficiently.
This model is efficient with up to 4-digit numbers. Place value counters are more efficient with larger numbers and decimals.

Place Value Counters (Subtraction)





Benefits

Using place value counters is an effective way to support children's understanding of column subtraction. It is important that children write out their calculations alongside using or drawing counters so they can see the clear links between the written method and the model.

Children should first subtract without an exchange before moving on to subtraction with exchange. If you don't have place value counters, use normal counters on a place value grid to enable children to experience the exchange between columns.

When building the model, children should just make the minuend using counters, they then subtract the subtrahend. Children start with the smallest place value column. When there are not enough ones/tens/hundreds to subtract in a column, children need to move to the column to the left and exchange e.g. exchange 1 ten for 10 ones. They can then subtract efficiently.

Appendix 4 – The Value of Precise Mathematical Vocabulary

The following are edited extracts from an article taken from RisingStars-UK.com at https://www.risingstars-uk.com/blog/november-2015/the-value-of-precise-mathematical-vocabulary in March 2024, written by Caroline Clissold.

For a comprehensive glossary, please see the separate document "NCETM Maths Glossary KS1-KS3" which is saved in PDF format with our calculation policies in the shared area.

For **addition**, precise terms include: **augend, add, addend, equal** and **sum**.
Augend is the amount that you start off with, addend is what you add to it and sum is the result. Augend comes from the Latin augendum, a thing to be increased.
Addend comes from the Latin word addendum which is an addition made to something.
Sum comes from the Latin word summa, which means highest.

The precise terms for **subtraction** are **minuend, subtract, subtrahend, equal** and **difference**.
Minuend stems from the Latin minuendus which means to be diminished or make smaller.
Subtrahend comes from the Latin subtrahendum which means to delete from a list or take away.
The **difference**, from the Latin word differentia meaning carrying away, is the result of the subtraction.

In **multiplication** the precise terms are: **multiplicand, multiplied by, multiplier, equal** and **product**.
Multiplicand comes from the Latin word multiplicandus which means to be increased or multiplied.
Multiplier is the number you are multiplying by and product is the result of the calculation.

Dividend, divided by, divisor, equals and **quotient** are precise terms for **division**.
Dividend comes from the Latin dividendum which is an amount to be divided into groups.
Divisor is the number by which another number is divided. Its original Latin word was divider.
Quotient comes from the Latin word quotiens which means 'how many times'.
The lines around such a calculation are called the **division bracket**, which makes a lot more sense.

Commutative is another word that children need to understand and begin to use.
Commutativity is an important part of addition and multiplication. If they understand this they would only need to learn half of their number facts and multiplication tables.

In **place value** it would be worth introducing the terms **positional, multiplicative** and **additive** to help the children understand these key areas of place value. It would also help to explain that our number system increases and decreases in **powers of 10**.

When dealing with **fractions** we need to be specific about the terms used when this area is introduced to children. Children should be introduced to **numerator** and **denominator** as correct vocabulary. The line that separates the two is a **vinculum**, which in Latin means 'bond'.