St Nicholas Church School	Progression and Calculation Document—SUBTRACTION	EYFS

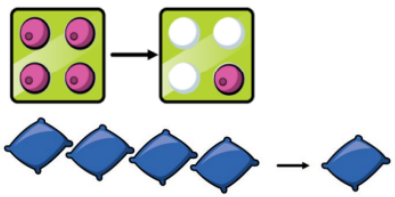
Early Learning Goals:

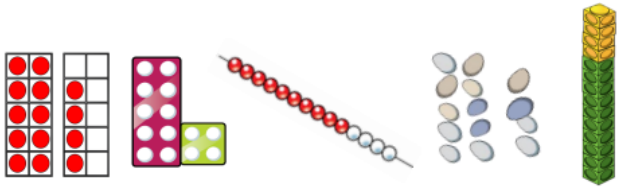
- Have a deep understanding of number to 10, including the composition of each number
- Subitise (recognise quantities without counting) up to 5
- Verbally count beyond 20, recognising the pattern of the counting system
- Automatically recall (without reference to rhymes, counting or other aids) number bonds to 5 (including subtraction facts) and some number bonds to 10, including double facts
- Compare quantities up to 10 in different contexts, recognising when one quantity is greater than, less than or the same as the other quantity
- (Solve real world mathematical problems with numbers up to 10)

Concrete

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



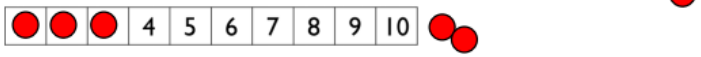


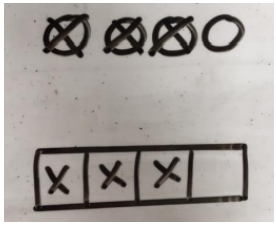
Pictorial

Using number tracks (and drawings) to take away

Use **first, then now** to tell simple maths stories to practise taking away in familiar contexts.

First there were 5 people on the bus.
Then 2 people got off the bus.
Now there are 3 people on the bus.

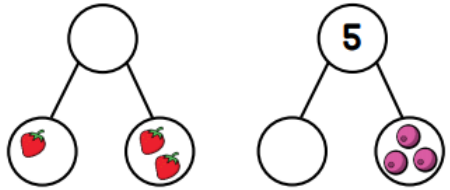


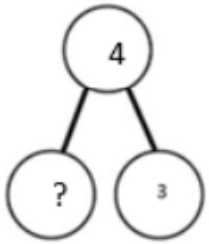


Abstract

Subtraction using part part whole

Show the children a part-whole model with either one of the parts or the whole missing.





Key Vocabulary:
First-then-now, take away, how many are left? How many have gone? Less, fewer, difference between, equals, is equal to, balances, number sentence, subtract, subtraction, double, whole, parts

STEM Sentences:
First there were…….. Then …. Left. Now there are…….

St Nicholas Church School — Progression and Calculation Document—SUBTRACTION — KS1

NC Learning Objectives:

End of Year One:

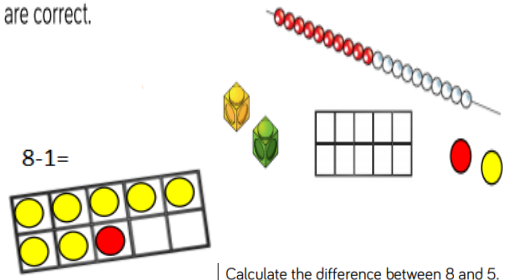
- Read, write and interpret mathematical statements involving subtraction (-) and equals (=) signs
- Represent and use number bonds and related subtraction facts within 20
- Subtract one-digit and two-digit numbers to 20, including 0
- Solve one step problems that involve subtraction, using concrete objects and pictorial representations, and missing number problems

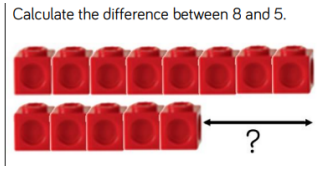
End of Year Two

- Solve problems with subtraction, using concrete objects and pictorial representation, including thise involving numbers, quantities and measures, applying their increasing knowledge of mental and written methods
- Recall and use subtraction facts to 20 fluently, and derive related facts up to 100
- Subtract numbers using concrete objects, pictorial representations, and mentally, including a two-digit number and ones; a two-digit number and tens; two two0digit numbers
- Show that subtraction of one number from another cannot be done in any order (not commutative)
- Recognise and use the inverse relationship between addition and subtraction and use this to check calculations and solve missing number probelms

Concrete

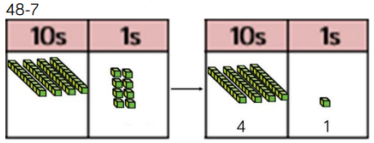
Use concrete objects to check and prove whether the calculations are correct.



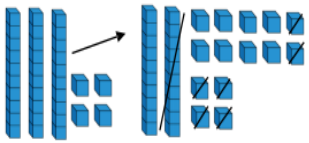


Column method using base 10.

48-7



Take 16 away from 34

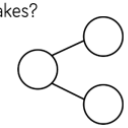


Pictorial

- Use counters to show how many are left– subtracting 1's

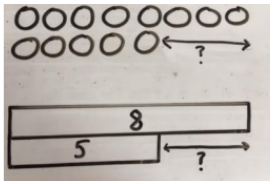
How many ice creams do not have flakes?

6 – 2 = ___



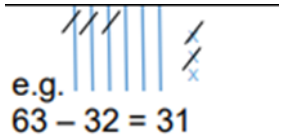
Complete the number sentence.

Finding the difference, bar models



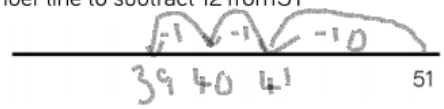
7 – 3 = ___

Drawing representations of base 10



Subtracting 2 digits by partitioning

Use the number line to subtract 12 from 51



Abstract

At first there were 10 bananas. 7 of them were eaten. How many bananas are left?

Use counters/cubes to help you solve and complete:

17 - 4 = ☐

17 - 3 = ☐

3 = ☐ - 4

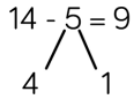
☐ = 17 - 3

Find the difference between 8 and 5.

8 – 5, the difference is ☐

Children to explore why

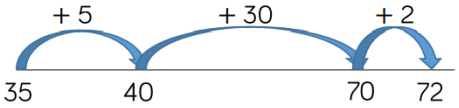
9 - 6 = 8 – 5 = 7 – 4 have the same difference.



14 – 4 = 10

10 – 1 = 9

72 – 35 = 37



Key Vocabulary: How many more? How many left? Leave, less, fewer, minus, subtract, subtraction, difference, count up, count back, equals, partition, exchange, check, inverse, calculation, equals, is equal to

STEM Sentences:

At first there were….., then …..went away. Now there are ….. left.

St Nicholas Church School — Progression and Calculation Document—SUBTRACTION — LKS2

NC Learning Objectives:

End of Year Three

- Subtract numbers mentally, including: a three-digit number and ones; a three-digit number and tens; a three digit number and hundreds
- Subtract numbers with up to three digits, using formal written methods of columnar subtraction
- Estimate the answer to a calculation and use unverse operations to check answers
- Solve problems, including missing number problems, using number facts, place value and more complex subtraction

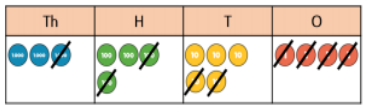
NC Learning Objectives:

End of Year Four

- Subtract numbers with up to four digits using the formal written methods of columnar subtraction where appropriate
- Estimate and use inverse operations to check answers to a calculation
- Solve subtraction two-step problems in contexts, deciding which operations and methods to use

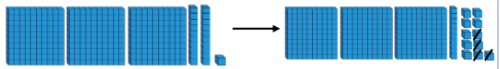
Concrete

Subtract with no exchange

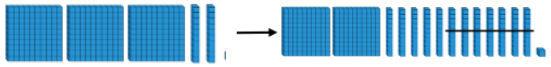


Subtract using an exchange

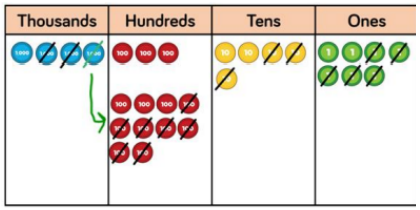
321 – 4



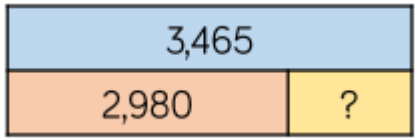
321 – 70 = 251

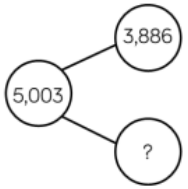


4357-2735

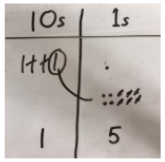


Pictorial

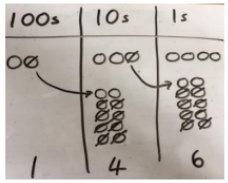




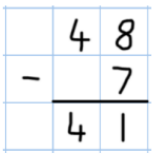
Represent the base 10 pictorially, remembering to show the exchange.



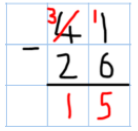
Represent the place value counters pictorially; remembering to show what has been exchanged.



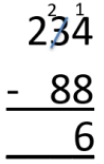
Abstract

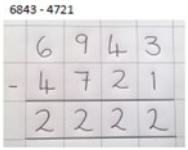


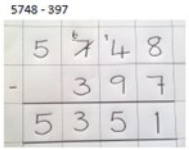
Formal column method. Children must understand that when they have exchanged the 10 they still have 41 because 41 = 30 + 11.

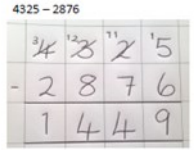


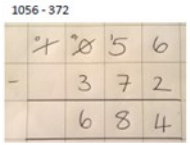
Formal colum method. Children must understand what has happened when they have crossed out digits.











Key Vocabulary:

Subtract, subtraction, exchange, column subtraction, find the missing digit, inverse, decrease, number sentence, calculation, calculate, estimate, mental method, formal method, fact family, adjust, empty box, decimal subtraction

STEM/ model Sentences:

Do you need to make both numbers when you are subtracting? Why? Why is it important to subtract the smallest place value column first? Does it matter which number goes on top? Does it matter if the numbers don't have the same number of digits?

St Nicholas Church School — Progression and Calculation Document—SUBTRACTION — UKS2

NC Learning Objectives:
End of Year 5

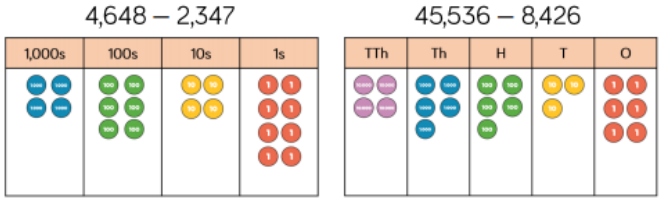
- Subtract whole numbers with more than four digits, including using formal written methods (columnar subtraction)
- Subtract numbers mentally with increasingly large numbers
- Use rounding to check answers to calculations and determine, in the context of a problem, levels of accuracy
- Solve subtraction multi-step problems in contexts, deciding which operations and methods to use and why

NC Learning Objectives:
End of Year 6

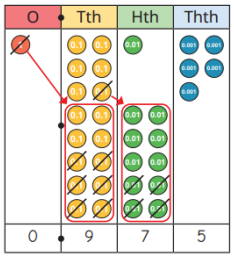
- Solve subtraction multi-step problems in contexts, deciding which operations and methods to use and why

Concrete

A range of concrete apparatus always available to support fluency, reasoning and problem solving (enabling children to show how). E.g place value counters, dienes, multi-link, multiplication grids etc.

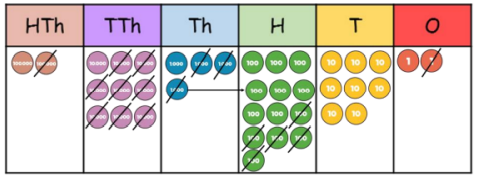


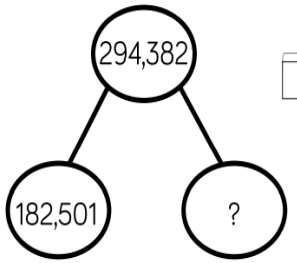
- Esther uses place value counters to work out 1.615 – 0.64

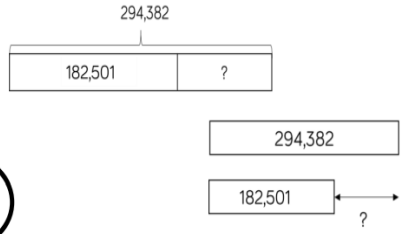


Pictorial

- Subtraction with and without exchange using pictorial representations of place value counters

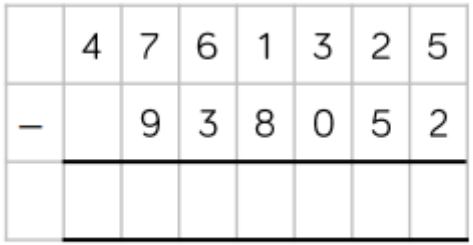




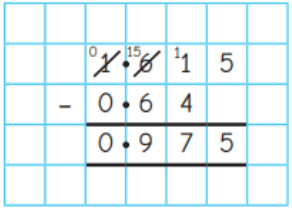


Abstract

- Subtraction with multiple exchange



834,501 – 299,999



Key Vocabulary:
Exchange, inverse, missing digits, most effective calculation strategy, column method, mental method, integer, order, operation, brackets, approximate

STEM/ model Sentences: Why is it important to subtract the smallest place value column first? Does it matter which number goes on top? Does it matter if the numbers don't have the same number of digits? What happens if there is more than 9 in a place value column? I column method always the best method? When should we use mental methods?