EYFS   Subtraction

Foundation 1

Statutory Requirements Early Learning Goals

Pupils should be taught to: Birth –to 11 months – notice changes in number of objects / images , sounds in groups of and up to 3

8 – 20 months - has some understanding that things exist even when out of sight

16-26 months – Begins to organise and categorise objects -sorting

22 – 36 months – knows that a group of things changes in quantity when something is added or taken away
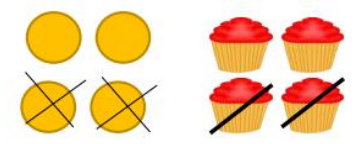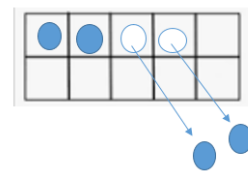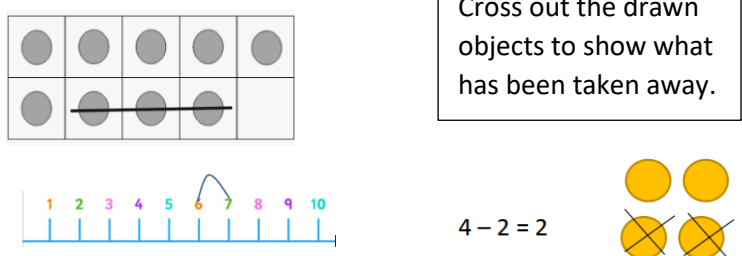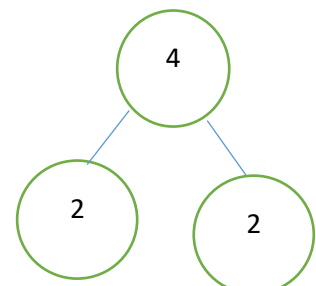
30 – 50 – separates a group of 3 or 4 objects in different ways beginning to recognise that the total is still the same

40-60 – Understands subtraction as taking away objects from a group and counting on how many are left. In practical activities and discussions begins to use the vocabulary involved in addition and subtraction

Foundation 2

Statutory Requirements:

Early Learning Goal - Children should count reliably with numbers from one to 20, place them in order and say which number is one more or one less than a given number. Use quantities and objects, add and subtract two single digit numbers and count on or back to find the answer.

Vocabulary	Concrete	Pictorial	Abstract
take away leave **How many are left/left over?** **How many have gone?** one less, two less . . . **difference between**	Use physical objects, counters, cubes etc to show how objects can be taken away. $4 – 2 = 2$ Work on tens frame. $4 – 2 =$	 Cross out the drawn objects to show what has been taken away. $1\ 2\ 3\ 4\ 5\ 6\ 7\ 8\ 9\ 10$ 7 count back 1 7 take away 1 $4 – 2 = 2$	$4 -2 = 2$ Recording symbolically alongside concrete and pictorial representation

Year 1
Statutory Requirements
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 zero

Solve one-step problems that involve subtraction, using concrete objects and pictorial representations, and missing number problems.

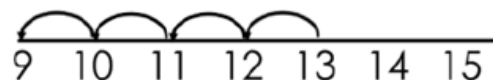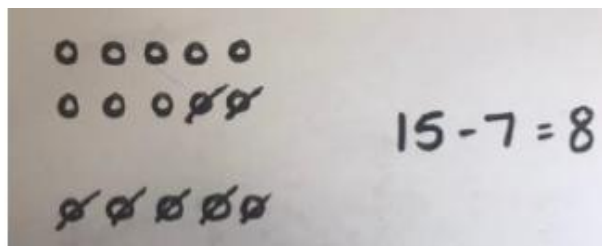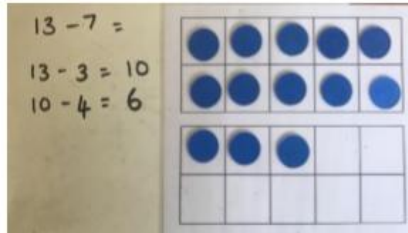| Vocabulary	Concrete	Pictorial	Abstract
Counting Back Number bonds, number line Inverse Equals is the same as (including equals sign) Subtract, take away, minus How many fewer is…than..?, how much less is..?	Make the larger number in your subtraction. Move the beads along your bead string as you count backwards in ones. $13 - 4$ Use counters and move them away from the group as you take them away counting backwards as you go.	Count back on a number line or number track 9 10 11 12 13 14 15 Draw a picture $15 - 7 = 8$	Put 13 in your head, count back 4. What number are you at? $13 - 4 -=$

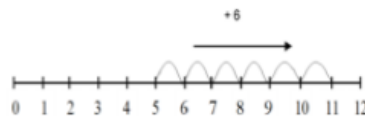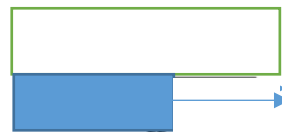|	**Make 10 and then Subtraction**		
	Children practise partitioning the number they are subtracting into parts which help bridge the 10. $13 - 7 =$ $13 - 3 = 10$ $10 - 4 = 6$ Making 10 using a rekenrek	Children to present the ten frame pictorially and discuss what they did to make 10 $13 - 7 = 6$ Start at 13. Take away 3 to reach 10. Then take away the remaining 4 so you have taken away 7 altogether. You have reached your answer.	$13 - 7$ $3 \quad 4$ How many do we need to take off to reach ten? $13 - 3 = 10$ How many more do we need to subtract? $10 - 4 = 6$
1	**Finding the Difference**		
Whole **Part** **Difference** **Count on** Number bonds, number line Inverse Equals Is the same as (including equals sign) Difference between How	Compare amounts and objects to find the difference. 8 goldfish 3 goldfish Use cubes to build towers or make bars to find the difference. Use basic bar models with items to find the difference. Use Numicon to find the difference	+6 Count on to find the difference. 0 1 2 3 4 5 6 7 8 9 10 11 12 **Comparison Bar Models** Draw bars to find the difference between 2 numbers. Lisa is 13 years old. Her sister is 22 years old. Find the difference in age between them.	Hannah has 23 sandwiches; Helen has 15 sandwiches. Find the difference between the number of sandwiches. $23 - 15 =$ This is a method of recording – calculation is on a number line and with the use of manipulatives.
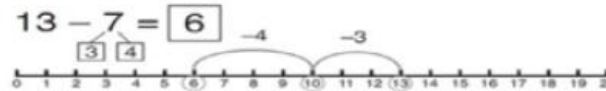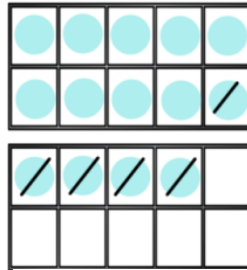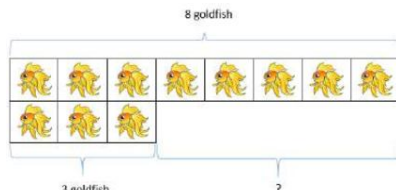
many more to make..?
How much more is..?
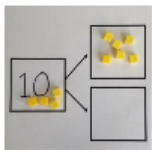
Link to addition- use the part whole model to help explain the inverse between addition and subtraction.

If 10 is the whole and 6 is one of the parts. What is the other part?

$$10 - 6 =$$

Use a pictorial representation of objects to show the part part whole model.
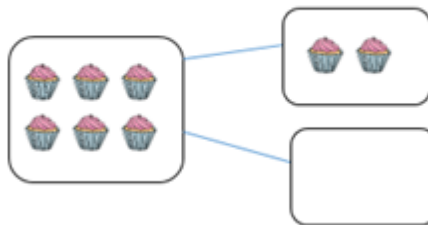
Move to using numbers within the part whole model.
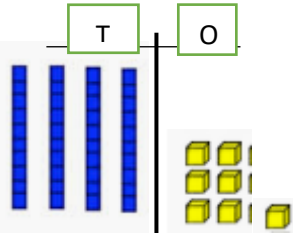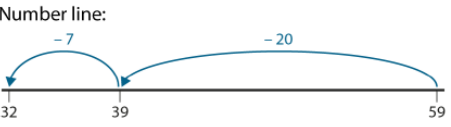
Year 2

Statutory Requirements:

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

Recall and use 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 two-digit number and ones, a two digit number and tens, two two-digit numbers and subtract three one-digit numbers
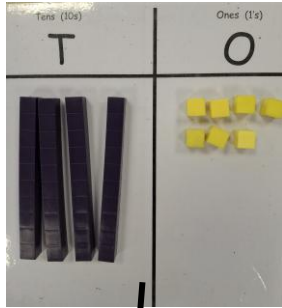
Show that addition of two numbers can be done in any order (commutative) and subtraction of one number from another cannot

Recognise and use the inverse relationship between addition and subtraction and use this to check calculations and solve missing number problems
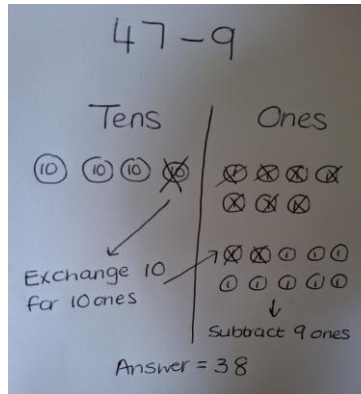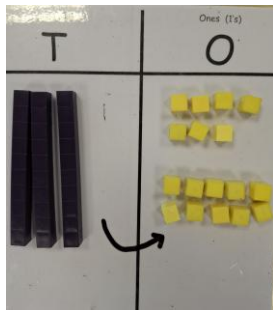
Vocabulary	Concrete	Pictorial	Abstract
2	**Subtraction / Counting Back / Take- away without exchanging**		
Number bonds Number line Inverse Equals is the same as (including equals sign) Subtract, take away, minus How many fewer is...than..?, how much less is..? base ten ones place value	$47 - 5 =$ $47 - 15 =$ T O Children to take dienes away.	Include place value headings in line with your school. $47 - 5$ $47 - 15$ Progress to subtraction of two digits, without exchange. Using Number lines 59 - 27 Number line: -7 -20 32 39 59 Part–part–whole diagram: | 59	

27	?		$47 - 5$ $47-15$
			$7-5 = 2$ $40 -10 =30$
			$40 + 2 = 42$ $7- 5 = 2$
			                  $30 + 2 = 32$
			
			Expanded Column Subtraction
			
			$47 - 15$
			    40 7
			- 10 5
			  --------- 	
			
			59 -27
			59 -20 = 39
			39 -7 = 32

2	Subtraction with exchanging		

	47 – 9 =
	
	Change for ten ones,
	
		Draw the place value counters.
		
		Exchange 1 ten for ten ones.
		
		How many tens?
		
		How many ones?
		
		Method also used for subtracting 2 digit numbers.
		
		Using Number lines
		
			Make the previous 10 and then subtraction.
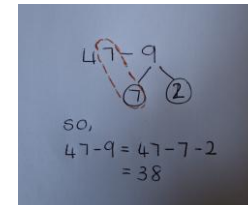			
			Expanded column with exchange
			
			47 – 19
			
			   30 17
			- 40 7
			   10 9
			   20 8
			
			63 – 17
			63 -10 = 53
			53 - 3 = 50
			50 - 4 = 46
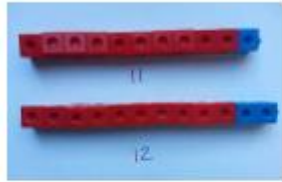
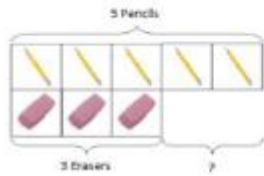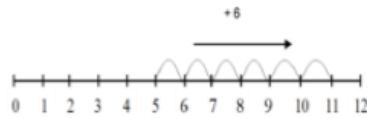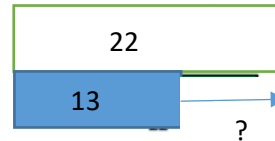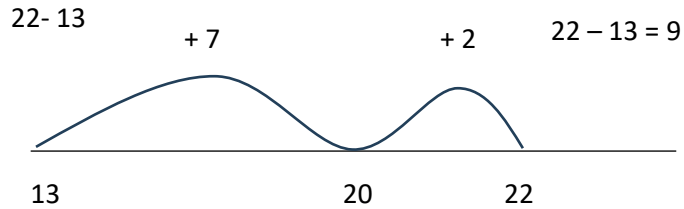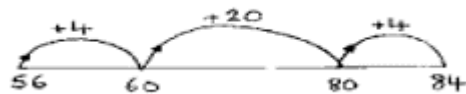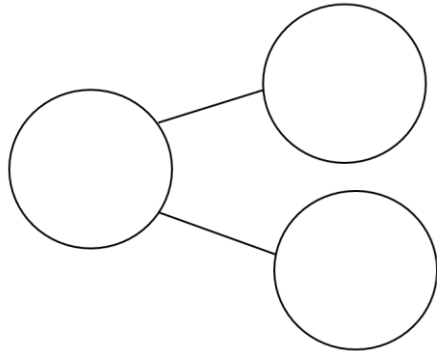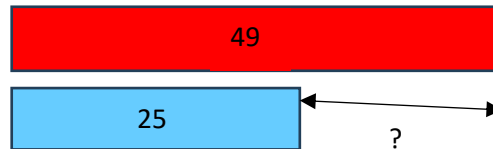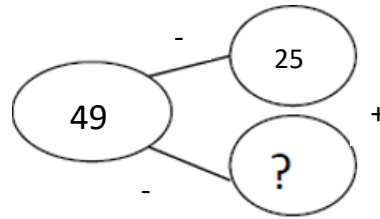| 2	**Find the difference**		
Whole **Part** **Difference** **Count on** Number bonds, number line Inverse Equals is the same as (including equals sign) Difference between How many more to make..? How much more is..?	Compare amounts and objects to find the difference. Use cubes to build towers or make bars to find the difference 5 Pencils Use basic bar models with items to find the difference 3 Erasers ? Use Numicon to find the difference	**Count on to find the difference.** +6 0 1 2 3 4 5 6 7 8 9 10 11 12 **Comparison Bar Models** Draw bars to find the difference between 2 numbers. Lisa is 13 years old. Her sister is 22 years old. Find the difference in age between them. 22 $22 - 13 =$ 13 ? Using a number line Counting up from the smaller to the larger number. To be taught to support mental calculations and when the numbers are close together. 22- 13 + 7 + 2 $22 - 13 = 9$ 13 20 22 Example 2: $84 - 56 = 56 + 4 + 20 + 4 = 84$ +4 +20 +4 $84 - 56 = 28$ 56 60 80 84	Hannah has 23 sandwiches; Helen has 15 sandwiches. Find the difference between the number of sandwiches. $23 - 15 =$ This is a method of recording – calculation is on a number line and with the use of manipulatives. Yr 2 Expanded subtraction not crossing tens $46 - 23 =$ 40 6 - 20 3 ---------------
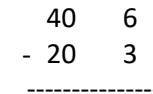
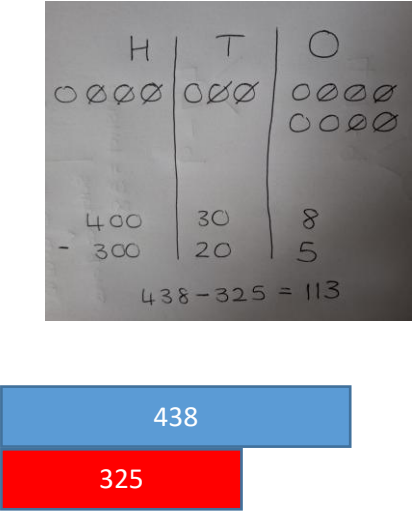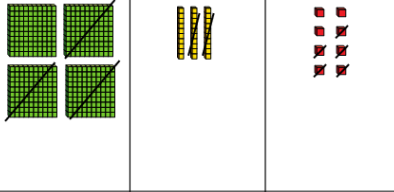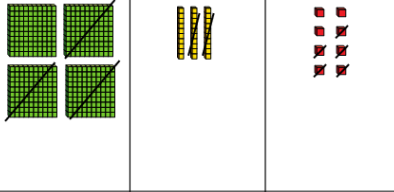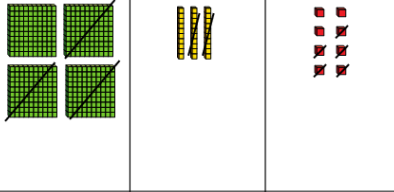| 2	**Part Whole** **Inverse** **Missing number**		
	Use part, part, whole frames to illustrate addition and subtraction are inverse calculations – used for missing number problems.	Use part, part, whole and bar models to illustrate the secure structure of the mathematics. ☐ + 25 = 49 49 — 25 — ? + 49 25 ? 	$49 - 25 = \boxed{24}$ $49 - 24 = 25$ $24 + 25 = 49$

Year 3

Statutory Requirements:

Subtract numbers mentally, including: a three-digit number and ones, a three-digit number and tens, a three-digit number and hundreds, a three-digit number and thousands

Subtract numbers with up to three digits, using formal written methods of column subtraction where appropriate

Estimate the answer to a calculation and use inverse operations to check answers

Solve problems, including missing number problems, using number facts, place value, and more complex subtraction.
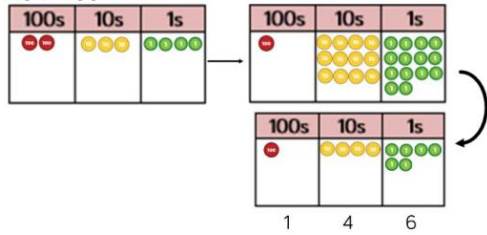
Language	Concrete	Pictorial	Abstract
3	**Subtraction without exchanging**		
Minuend Subtrahend Difference Minus Take away Less than Fewer Subtract Decimal Place value Exchange Expanded Compact Column method Formal method Without Exchanging	Use base 10 to start before moving onto place value counters 438 – 325 | Hundreds	Tens	Ones
1	1	3		 438 – 325 = 113 	 $\begin{array}{cc} TO & TO \\ 47 - 23 \end{array}$ $\begin{array}{rr} 40 & 7 \\ -20 & 3 \\ \hline 20 & 4 \end{array}$ → $\begin{array}{r} TO \\ 47 \\ -23 \\ \hline 24 \end{array}$ $\begin{array}{rrr} H & T & O \\ 400 & 30 & 8 \\ -\ 300 & 20 & 5 \\ \hline 100 & 10 & 3 \end{array}$ → $\begin{array}{r} H\ T\ O \\ 4\ 3\ 8 \\ -\ 3\ 2\ 5 \\ \hline 1\ 1\ 3 \end{array}$

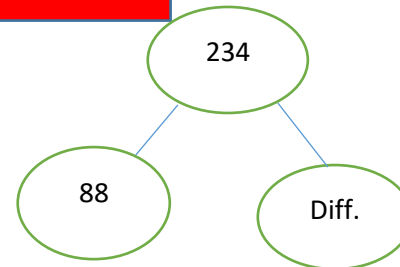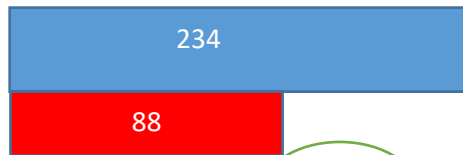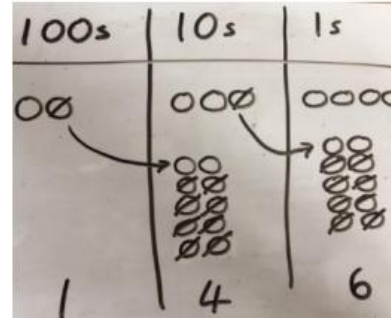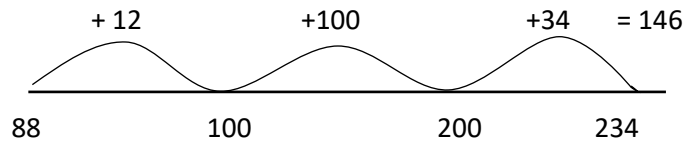| 3	**Column Method with exchanging**		
	Start with one exchange before moving onto subtractions with 2 exchanges. 234 - 88 = 100s 10s 1s 1 4 6	234 -88 = Represent the place value counters pictorially: remembering to show what has been exchanged. 100s | 10s | 1s 1 | 4 | 6 234 88 234 88 Diff. When exchanging with subtraction – counting on using a number line can be more efficient than counting back. Explore the relationship between the part and the whole. This is finding the difference – not subtraction (taking away) + 12 +100 +34 = 146 88 100 200 234	Column method to include exchange. Children must understand what happens when they have crossed out digits. $2\overset{2}{\cancel{3}}\overset{1}{4}$ - 88 6 Use the inverse to check answers. Estimate before commencing to determine approximate magnitude of the answer.

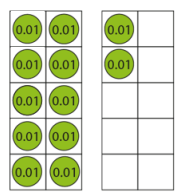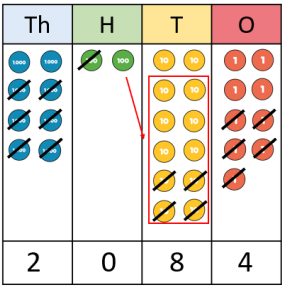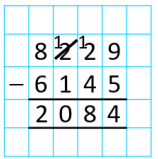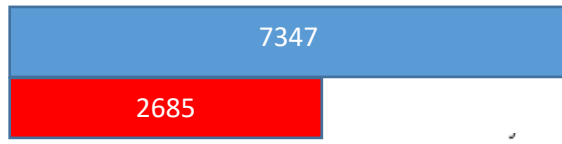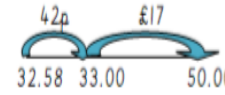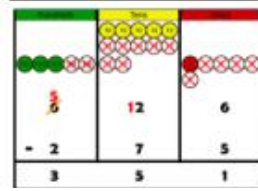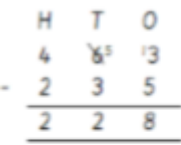| Year 4 |
| --- |
| Statutory Requirements: |
| Subtract with up to 4 digits using the formal written methods of column subtraction where appropriate |
| Estimate and use inverse operations to check answers to a calculation |
| Solve subtraction two-step problems in contexts, deciding which operations and methods to use and why |

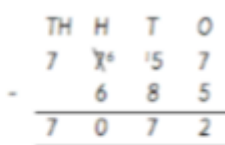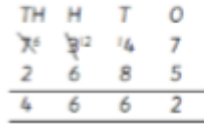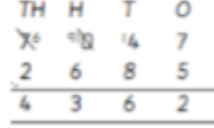| Language	Concrete	Pictorial	Abstract
Subtraction	0.12 – 0.05= 0.07	When subtracting across boundaries – often counting on is more efficient. Explore the relationship between part and whole and finding the difference.	
Take away			
Minus	Tens frame underpins ten 0.01 in 0.1		
Difference			
Formal, column method	The same can be used for working with tenths.	7347	
Less than		2685	
Minuend			
Subtrahend		£50 - 32.58 = £17.42	
Inverse	Dienes and place value counters can be used as in Year 3.	7347	
Estimate		42p £17	
Place Value	Progressively move towards 4 digit number, increasing the number of exchanges:	32.58 33.00 50.00	
Decimal			
Tenths		2685 Difference	
Hundredths			Use the inverse to check answers.
Hundreds			Estimate before commencing to determine approximate magnitude of the answer.
Tens	8,229 – 6,145		
Thousands			
Ones			
Money		Draw the counters onto a place value grid and show what you have taken away by crossing the counters out as well as clearly showing the exchanges you make.	
Pence			
Pounds			
Use strategies as in Year 3.			

Concrete detail:

0.01 counters in tens frame: 0.12 – 0.05= 0.07

Place value grid: Th | H | T | O → 2 | 0 | 8 | 4

8 2 2 9
− 6 1 4 5
  2 0 8 4

Abstract columns:

H T O
4 5 3
− 2 3 5
  2 2 8

TH H T O
7 6 5 7
− 6 8 5
  7 0 7 2

TH H T O
7 6 12 4 7
 2 6 8 5
 4 6 6 2

TH H T O
7 6 13 4 7
 2 6 8 5
 4 3 6 2

H T O . ths hths
3 2 1 8 . 6 9
− 1 4 6 . 2 5
  1 7 2 . 4 4

Year 5 Objectives:
Subtract whole numbers with more than 4 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.

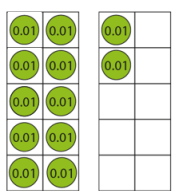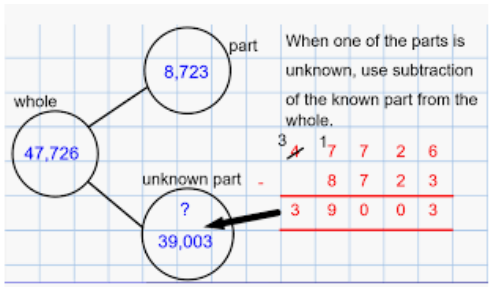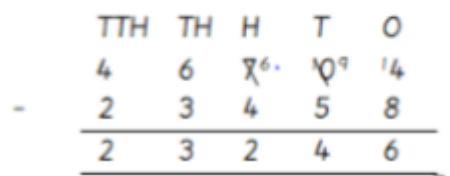| Language	Concrete	Pictorial	Abstract
Tens of thousands Hundreds of thousands Million Subtrahend Minuend Difference Language from previous years.	Strategies build on those of year 4 and involve staring numbes of up to 100,000 and progressing to 1,000,000 Manipulatives used to underpin the structure of the maths being taught. Use all previous years representations where appropriate. 0.12 – 0.05= 0.07 Tens frame underpins ten 0.01 in 0.1 The same can be used for working with tenths. This can be applied to thousandths.	It is crucial that effective and efficient mental strategies are not replaced by this standard method. Children should be given opportunities to look at numbers and decide when other strategies are more appropriate: 30,001 – 29,999 = ? 24,220 – 1120 = Iconic strategies such as drawing images, approximation, using the inverse to check, number lines, application of number bonds to different place values – all promote mental fluency. Continue to use the bar model to underpin the structure of the maths. The Part Whole supports the concept of finding the difference. See strategies from previous year groups. 	Subtracting 5 digit numbers, moving towards 6 digit numbers and using 0 as a place holder. Discrete teaching of the requirement to make more than one exchanges must be taught, when dealing with 0.

Year 6 **Statutory Requirements:** Solve subtraction multi-step problems in contexts, deciding which operations and methods to use and why		
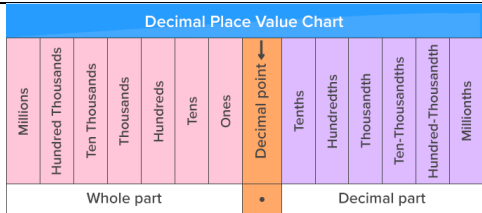
Language	Concrete	Pictorial	Abstract
As above	 Place value grids and counters to support where necessary.	By the time the children reach Y6 they will be consolidating and building on existing strategies that have been taught but will be using bigger numbers (up to 10,000,000)and more complex decimals (to three decimal places). They will select methods and use these methods as an efficient way of problem solving. It is crucial that effective and efficient mental strategies are not replaced by this standard method. Children should be given opportunities to look at numbers and decide when other strategies are more appropriate: 30,001 – 29,999 = ? 24,220 – 1120 = Iconic strategies such as drawing images, approximation, using the inverse to check, number lines, application of number bonds to different place values – all promote mental fluency. Continue to use the bar model to underpin the structure of the maths. The Part Whole supports the concept of finding the difference. See strategies from previous year groups. (See Year 5)	