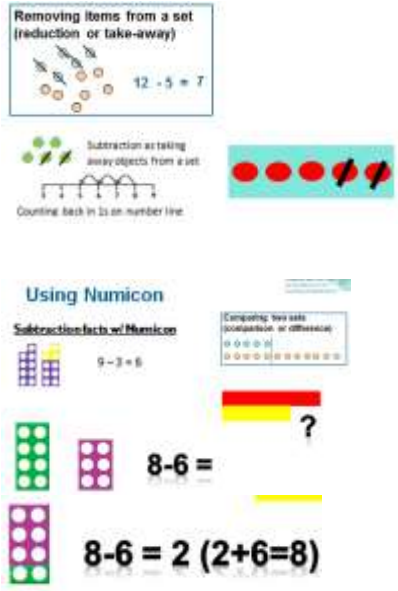
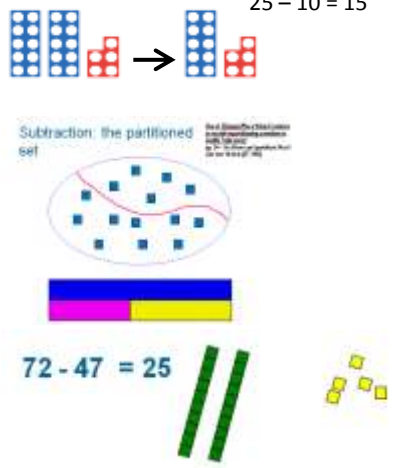
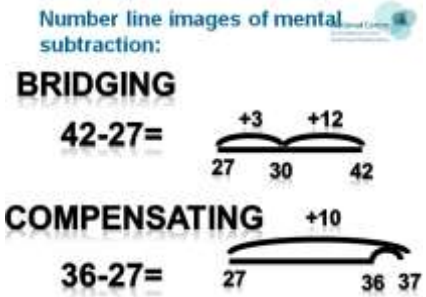
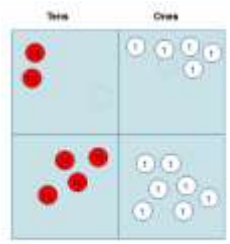
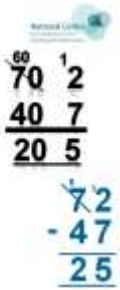
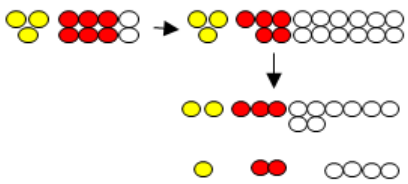
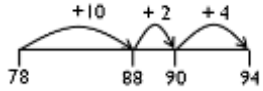
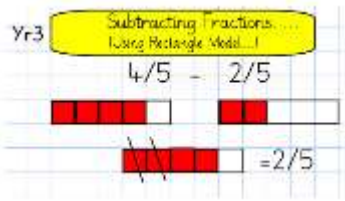
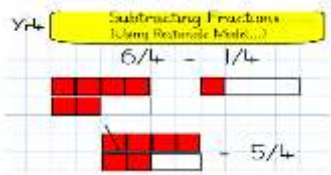
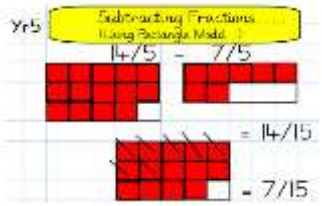
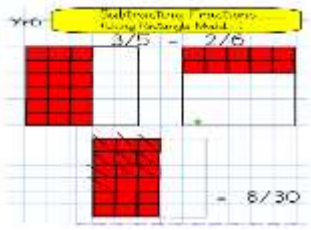
Progression in Teaching and Learning Subtraction

Year Group and Notes	Written Calculations	Models & Images / Manipulatives	Mental Calculations for fluency	Known Facts for fluency	Reasoning and Problem Solving
Foundation Stage Development Matters/ELGs	Finds one less than a number to 10	Select two groups of objects to make a given total of objects	-In practical activities & discussion, begin to use the vocabulary involved in subtraction	--Use a range of strategies for - incl some recall of number bonds	
Year 1 - Understand subtraction as 'taking away' objects from a set and finding how many are left -Read, write and interpret mathematical statements involving – and = -subtract one-digit and two-digit numbers to 20 Vocabulary: take away, distance between, less than	Record their work, e.g. - record their work with objects, pictures or diagrams - begin to use the symbols '-' and '=' to record calcs with numbers to 20 -solve one step problems involving subtraction using concrete objects, pictorial representations and missing number problems		- Subtract numbers of objects to 10 - Begin to subtract by counting back from the number of objec ts in the first set	Instant recall - Halves of even numbers to 20 - Know 'one less' than numbers to 20, e.g. 12 -1 - Subtraction facts for number bonds to 20	
Year 2 - 'How many more' should be introduced e.g. 8 + __ = 11 - Count in 10s and 1s first then, quickly move to more efficient jumps (see bridging pic) -recognise inverse and use this to check calculations and solve missing number problems. -understand that subtraction cannot be done in any order (not commutative) Vocabulary: take away, distance between, less than, **difference, subtract**	- Subtract TU-U, TU-T, TU-TU - Solve problems using concrete objects and pictorial representations, including those involving numbers, quantities and measures. - Record in columns to support place value **<u>Counting on on the number line</u>** Subtract two digit numbers using a written method, e.g. 36 -13, (*including bridging 10*, e.g. 42 – 15) . Start at the lower number on the number line and count on	**<u>Subtracting 10 with Numicon</u>** Until chn can do this seamlessly, don't start on number line 25 – 10 = 15 	Subtract TO-O, TO-T, TO-TO Use counting on to derive subtraction facts to 20 where relevant, e.g. 19 – 17 = 2 Record their work in writing, e.g. *- record their mental calculations as number sentences* 	Instant recall • Halves of even numbers to 20 • Subtraction facts from 20 • Know 10 less than any number to 100 (model link to number bonds with Numicon) <u>Derived</u> • Subtraction facts from numbers to 100 (e.g. 90 - 20 = 70)	

Year 3 - Need to really work on building understanding of subtraction as 'finding the difference/counting on' - 'Never partition both numbers for take away'. Need to teach this explicitly as otherwise chn will. - Give chn lots of practice on choosing when to use counting on (small difference/ numbers close together) vs taking away (large diff/ taking away a small amount)- -Subtract decimals in the context of money where bridging is not required -Solve problems including missing number problems, using number facts, place value and more complex subtraction -Estimate and use inverse operations to check answers to calculations	Subtract three-digit numbers including bridging 10 or 100 using formal written methods **Progressions towards decompostion** 1) 83 – 47 = Can you partition 83 so you can see 47 in it? 2) Expanded decompositions 3) Decomposition with place value counters/ straws/ diennes alongside writ 3 5 6 12 1 2 4 - 2 3 8 Subtract decimals in the context of money where bridging not required	  **Column subtraction** Model exchanging using dienes/place value counters, as shown fully on separate sheet. 	Subtract HTO-O, HTO-T, HTO-H mentally, e.g. - Calculate 63 - 26 (**Counting back or counting on incl using compensating or bridging where relevant)** - Complements to 100, e.g. 100 - 64 **Counting on mentally on a number line** for numbers close together e.g. 94 – 78 Subtract decimals in the context of money where bridging not required 	Instant recall • Half of 90, 70, 50 and 30 Derived • All subtraction facts from numbers to 20 **(derived using bridging, compensating or near doubles)** • Subtraction facts for multiples of 10, e.g. 160 – 70 = 90	
Year 4 -When working with money, teach that when finding change from a round number (e.g.£5, £10, £20) it is easier to count on on a number line than use column subtraction. -Keep chn visualising the starting number to help them to remember to exchange when necessary -Solve addition two-step problems in contexts, deciding on which method to use and why. -Estimate and use inverse operations to check answers to a calculation	**Column subtraction** Subtract whole numbers with more than 4 digits using formal written methods Use efficient written methods of subtraction, e.g. - *Calculate 1025 - 336* - *Subtract decimals to 2 places* 3 5 6 12 1 2 4 - 2 3 8		Continue to use counting on for all calculations that can and should be done mentally Practise mental methods with increasingly large numbers to aid fluency	Instant recall • Half of 9, 7, 5 and 3 Derived • Halves of decimals to 1 dp for even tenths, e.g. half of 5.8	
Year 5 / 6 - Reinforcing alignment of dps for column subtraction. Show how chn can write in 0 for e.g. empty hundredths as place holder. -Solve problems including decimals up to 3 decimal places -Add numbers with more than 4 digits	**Column subtraction** Subtract numbers that do not have the same number of decimals places		Continue to use counting on for all calculations that can and should be done mentally Practise mental methods with increasingly large numbers to aid fluency Mental calculations with mixed operations and large numbers	Derived • Halves of decimals to 1 dp for odd tenths, e.g. half of 5.7	

-Use rounding to check -Solve multi-step problems -Use estimation to check answers to calculations					
Fractions					
Year 3 Subtract fractions with the same denominator within one whole e.g. 5/7 - 1/7 = 4/7	**Rectangle Model** Use the rectangle model to visualise the given fractions. Subtract numerators that don't exceed 1 whole. Development into subtracting numerators without using rectangle model.		Subtract single digit numbers.	Instant recall • Subtraction of single digits numbers	Build a wall – Problem Solving (Finding equivalents – showing which fractions can be subtracted from another to form a new fraction).
Year 4 Subtract fractions with the same denominator (With improper fractions). 8/5 + 4/5 = 4/5	**Rectangle Model** Use the rectangle model to visualise the given fractions. Subtract numerators that exceed 1 whole. Development into subtracting numerators without using rectangle model.		Subtract single digit numbers.	Instant recall • Subtraction of single digits numbers	
Year 5 Subtract fractions with the same denominator and denominators that are multiples of the same number. (Improper and mixed number facts) 12/5 - 4/5 = 8/5 = 1 3/5 7/4 – 3/8 = 11/8 = 1 3/8	**Rectangle Model** Use the rectangle model to visualise the given fractions. Subtract numerators that exceed 1 whole and convert fractions to common denominators. Use visual rectangle to calculate mixed number fraction. Development into subtracting numerators without using rectangle model.		Subtract single / double digit numbers Calculating multiples of numbers	Instant recall • Subtraction of single / double digits numbers • Multiples of numbers	
Year 6 Subtract fractions with different denominators and mixed numbers, using the concept of equivalent fractions. 14/5 - 7/10 = 21/10 = 2 1/10 3 ¾ - 1 2/8 = 20/8 = 2 4/8	**Rectangle Model** Use the rectangle model to visualise the given fractions. Subtract numerators that exceed 1 whole and convert fractions to common denominators. Use visual rectangle to calculate mixed number fraction. Development into subtracting numerators without using rectangle model.		Subtract single / double digit numbers Calculating multiples of numbers	Instant recall • Subtraction of single / double digits numbers • Multiples of numbers	