

Early Learning Goal:

Children at the expected level of development will: automatically recall (without reference to rhymes, counting or other aids) number bonds up to 5 (including subtraction facts) and some number bonds to 10

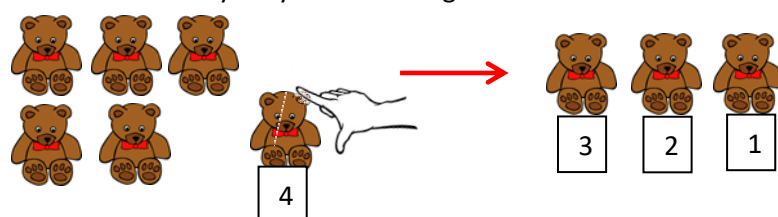
Children should experience practical calculation opportunities using a wide range of equipment, including small world play, role play, counters, cubes etc.

NURSERY 1**Taking 1 away each time**

Count out 9 objects



Drag away 4 objects whilst counting. This allows children to keep track of how many they are removing

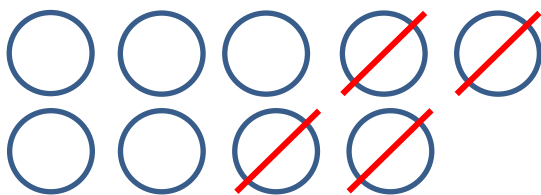


Drag remaining objects into a line whilst counting to find the amount that is left.

Wide range of real life objects can be used such as cups, plates, snack, children, fingers etc.

NURSERY 2**Take away 1 each time**

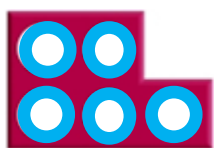
Consolidate understanding of Step 1 with objects and when ready record calculations.



Draw 9 objects and cross 4 out before counting the amount that is left.

RECEPTION**Take more than 1 away**

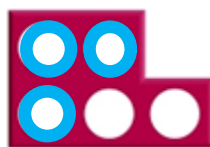
Children continue to experience calculation through real life objects. Also given numicon to represent objects.



5 numicon piece with 5 pegs



Subtract 2 pegs



Leaving 3 pegs allowing children to see that the pattern matches a 3 numicon shape.



EARLY LEARNING SUBTRACTION VOCABULARY:

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

YEAR 1 END OF YEAR MENTAL OBJECTIVE:***Read, write and interpret mathematical statements involving subtraction (-) and the equals sign (=)**

Children should experience many opportunities to understand the purpose of the equals sign and that it does not just mean 'the answer'. Use of **balance scales** is recommended for children to visually understand this concept.

Eg: $4 - 1 = 1 + 3$

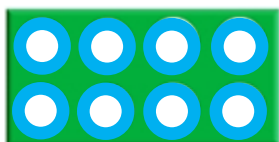
***Represent and use number bonds and related subtraction facts within 10.**

Bonds for different numbers including teen numbers should be regularly rehearsed in various ways. Children should be encouraged to write bonds in various addition and subtraction number sentences.

Eg: $2 + 15 = 17$, $3 + 14 = 17$

YEAR 1 END OF YEAR WRITTEN OBJECTIVE:**Solve problems involving subtraction of one-digit and two-digit numbers to 20, including zero (using concrete objects and pictorial representations)**

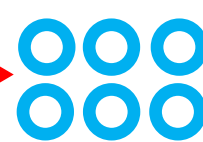
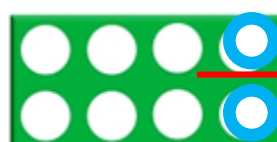
Children should continue to experience calculations involving concrete objects, numicon and unifix. Use of dienes apparatus will also be introduced.

STEP 1: Subtract two single digit numbers.

Place pegs in an 8 numicon piece.

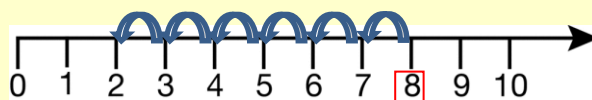
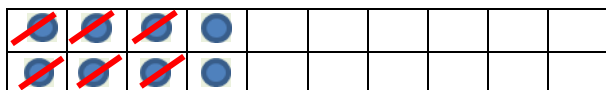


Cover with a 6 numicon piece
(to show how many to subtract)



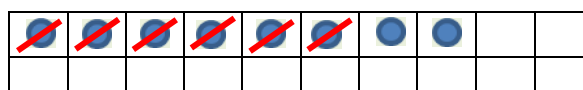
Take the 6 pegs away
and move away leaving 2. **Record $8 - 6 = 2$**

Number line representation modelled alongside children's practical method.

**STEP 2: Record calculations on squares in books**

Layout recording in numicon shape and cross out the amount to be taken away.

Record $8 - 6 = 2$

STEP 3: Record calculations in linear fashion (up to 10)

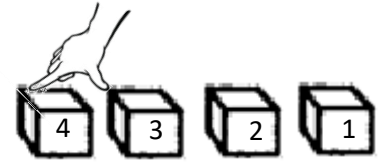
Record in linear fashion up to 10 and cross out the amount to be taken away.

Record $8 - 6 = 2$

STEP 4: Subtract single digits from numbers up to 20

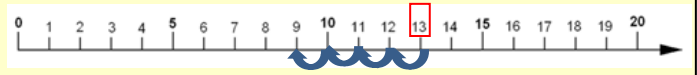
Children continue to rehearse subtracting until secure. With numbers up to 20 children will now begin practice subtraction using single dienes.

Eg: Touch count and remove the number to be taken away, in this case 4.



Record number sentence $13 - 4 = 9$

Number line representation modelled
children's practical method

**YEAR 1 SUBTRACTION VOCABULARY: red words new to Year 1**

how much more is...?

-, subtract, take (away), minus

leave

how many are left/left over?

how many are gone?

one less, two less, ten less...

how many fewer is... than...?

how much less is...?

difference between

half, halve

=, equals sign, is the same as

YEAR 2 END OF YEAR MENTAL SUBTRACTION OBJECTIVES:

*recall and use subtraction facts to 20 fluently and derive related facts to 100.

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

*Understand that subtraction is not commutative (cannot be done in any order.)

YEAR 2 END OF YEAR WRITTEN OBJECTIVE:

Solve problems involving subtraction of one and two-digit numbers using concrete objects and pictorial representations.

Concrete apparatus and representations are used in teacher modelling – Dienes' apparatus is used by children.

STEP 1: Use dienes apparatus to subtract two-digit numbers where the ones do not cross the tens boundary.

Count the total amount. Children must understand that the number being subtracted does not appear on its own but as part of the larger amount.

Remove the ones being subtracted, then the tens.

which leaves

The amount left is the answer.

Record $54 - 23 = 31$

STEP 2: Use dienes apparatus to subtract a single digit from a multiple of ten.

Count out 5 tens.

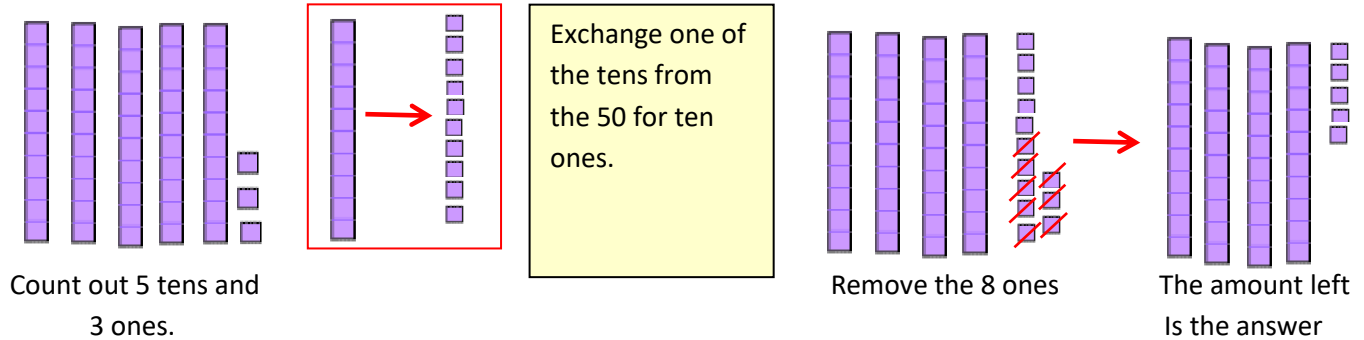
Exchange one of the tens from the 50 for ten ones.

Remove 8 ones

The amount left is the answer.

Record $50 - 8 = 42$

STEP 3: Use dienes apparatus to subtract a single digit from a two-digit number.



STEP 4: As step 3 but with a second two-digit number.

(Photographs and number sentences are recorded in books.)

YEAR 2 SUBTRACTION VOCABULARY: red words new to Year 2

-, subtract, take away, minus

leave, how many are left/left over?

one less, two less... ten less... **one hundred less**

how many less is... than...?

how much fewer is...?

difference between

half, halve

=, equals sign, is the same as, **equivalent to**

*** tens boundary**

YEAR 3 END OF YEAR MENTAL OBJECTIVES:

***Subtract mentally: a three-digit number and ones, a three-digit number and tens, a three-digit number and hundreds.**

Use of number lines and extended hundred squares used to develop children's fluency.

***estimate the answer to a calculation and use inverse operations to check answers.**

***Use number facts and place value to solve more complex addition problems including missing number problems.**

Eg: $456 - \quad = 406$

YEAR 3 END OF YEAR WRITTEN OBJECTIVE:

Solve subtraction problems with numbers with up to three digits, using a formal written method of columnar subtraction.

STEP 1: Use more formal representation to subtract two digit numbers where ones do not cross the tens boundary.

Manipulate dienes on place value charts.

Remove the 2 tens and 3 ones

 10s	 1s
 50	 4
$\begin{array}{r} 54 \\ - 23 \\ \hline \end{array}$	$\begin{array}{r} 3 \\ - 3 \\ \hline \end{array}$
20	3
30	1

$$54 - 23 = 31$$

STEP 2: Record in expanded form in columns.

 10s	 1s
50	4
$\begin{array}{r} 54 \\ - 23 \\ \hline \end{array}$	$\begin{array}{r} 4 \\ - 3 \\ \hline \end{array}$
20	3
30	1

$$54 - 23 = 31$$

STEP 3: Record in compressed form in columns.

 10s	 1s
5	4
$\begin{array}{r} 54 \\ - 23 \\ \hline \end{array}$	$\begin{array}{r} 4 \\ - 3 \\ \hline \end{array}$
2	3
3	1

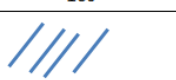
$$54 - 23 = 31$$

STEP 4: Use formal representation to subtract pairs of two digit numbers where ones cross the tens boundary.

Place dienes in place value grid and exchange a tens rod for ten ones. This is shown as two stages below:

 10s	 1s
 50	 4
$\begin{array}{r} 54 \\ - 28 \\ \hline \end{array}$	$\begin{array}{r} 4 \\ - 8 \\ \hline \end{array}$
20	8

Exchange a ten for ten ones.

 10s	 1s
 40	 14
$\begin{array}{r} 54 \\ - 28 \\ \hline \end{array}$	$\begin{array}{r} 14 \\ - 8 \\ \hline \end{array}$
20	8
20	6

Remove 8 ones

$$54 - 28 = 26$$

STEP 5: Record in expanded column form.

	10s	1s
	40 50	10 (14) 4
—	20	8
	20	6
	$54 - 28 = 26$	

STEP 6: Record in compressed column form

	10s	1s
	4 5	14
—	2	8
	2	6
	$54 - 28 = 26$	

STEP 7: As steps 1-6 but with up to 3 digit numbers (continued use of apparatus and visual images to support)

YEAR 3 SUBTRACTION VOCABULARY: red words new to Year 3

-, subtract, take (away), minus

leave, how many are left/left over?

one less, two less... ten less...

one hundred less

how many fewer is... than ...?

how much less is...?

difference between

half, halve

=, equals sign, is the same as

tens boundary, hundreds boundary

YEAR 4 END OF YEAR MENTAL OBJECTIVES:

*Estimate and use inverse operations to check answers a calculation.

**Subtract mentally with increasingly large numbers. (eg: $2,462 - 300 = 2,162$)

YEAR 4 END OF YEAR WRITTEN OBJECTIVE:

Solve subtraction problems involving numbers with up to 4 digits and decimals with two decimal places using the formal written method of columnar subtraction where appropriate.

STEP 1: Use a formal representation to subtract three digit whole numbers.

STEP 2: As Step 1, using four digit whole numbers

Place dienes into place value columns and subtract vertically exchanging where necessary.

1000s	100s	10s	1s
3000	600 (500)	30 (130)	3
Exchange a hundred for 10 tens			
- 2000	500	40	2
1000	0	90	1
3633 - 2542 = 1091			

STEP 3: Formal written column subtraction.

1000s	100s	10s	1s
3	5 6	3 4	3
2	5	4	2
1	0	9	1

$$3633 - 2542 = 1091$$

Use commas to separate 1000s from 100s.

STEP 4: As step 3 but with numbers which have mixed amounts of digits

STEP 5: Subtract decimals with 2 decimal places.

Use representations and practical calculation with both dienes and coins (money). Dienes used should be different colour from dienes used for calculating with 100s, 10s and 1s.

Representation with coins

10s	1s	1/10s	1/100s
	1	3	6
-			
	2	0	6

Representation with Dienes

1s	1/10s	1/100s
3	4	2
-		
1	3	6

£10	£1	10ps	1ps
10s	1s	1/10s	1/100s
	3	4	2
	1	3	6
	2	0	6

1s	1/10s	1/100s
3	4	2
-		
1	3	6
2	0	6

YEAR 4 SUBTRACTION VOCABULARY: red words new to Year 4

subtract, subtraction, take away, minus, decrease

leave, how many are left/left over? difference between

half, halve

how many more/fewer is... than...?

how much more/less is...?

is the same as, equals sign

tens boundary, hundreds boundary, inverse

YEAR 5 END OF YEAR MENTAL OBJECTIVE:

*Subtract mentally with increasingly large numbers. (eg: $12,462 - 2,300 = 10,162$)

*Use rounding to check answers to calculations and determine level of accuracy.

YEAR 5 END OF YEAR WRITTEN OBJECTIVES:

*Solve problems involving subtraction of whole numbers with more than four digits and decimals number with up to 3 decimal places.

STEP 1: Use column method to subtract larger whole numbers with mixed amounts of digits.

	10,000s	1,000	100	10	1
	5	² 3	¹ 4	⁵ 6	¹ 0
-		1	7	4	5
	5	1	7	1	5

STEP 2: Subtract two 3 place decimal numbers.

	1s	1/10s	1/100s	1/1000s
	² 3	¹ 4	⁵ 6	¹ 0
-	1	7	4	5
	1	7	1	5

YEAR 5 SUBTRACTION VOCABULARY: red words new to Year 5

subtract, subtraction, take (away), minus, decrease

leave, how many are left/left over? difference between

half, halve

how many more/ fewer is... than...? how much more/less is...?

equals sign, is the same as

tens boundary, hundreds boundary, ones boundary, tenths boundary, inverse

YEAR 6 END OF YEAR MENTAL OBJECTIVES:

- *Perform mental calculations, including with mixed operations and large numbers.
- *use knowledge of order of operations to carry out calculations involving four operations
- *use estimation to check answers to calculations and determine an appropriate degree of accuracy.

YEAR 6 END OF YEAR WRITTEN OBJECTIVE:

- *Solve Subtraction problems involving decimals with mixed amounts of digits, money and measures where conversion of units is required using a formal written method.

STEP 1: Subtract whole numbers and decimals with any number of digits.

100s	10s	1s	1/10s	1/100s		100s	10s	1s	1/10s	1/100s
4	1	7	2			3	1	6	11	10
-	3	4	7	1	→		3	4	7	1
						3	8	2	4	9

When adding decimals with different numbers of decimal places children should be taught to make them the same decimal place through understanding that 2 tenths is the same as twenty hundredths therefore, 0.2 has the same value as 0.20.

STEP 2: Convert amounts before written calculation so both numbers are the same units of measure.

Eg: 7.27kg – 358g 7.27kg = 7270g therefore calculation is 7270 - 358

YEAR 6 SUBTRACTION VOCABULARY:

subtract, subtraction, take (away), minus, decrease

leave, how many are left/left over? difference between

half, halve

how many more/fewer is... than...?

how much more/less is...?

is the same as, equals sign

tens boundary, hundreds boundary, units boundary, tenths boundary, inverse