**Early Learning Goal:**

Children at the expected level of development will: explore and represent patterns within numbers up to 10, including evens and odds, double facts and how quantities can be distributed equally.

Children should be encouraged to develop a mental picture of the number system in their head. They should experience practical calculation opportunities using a wide range of equipment, including small world play, role play, counters, unifix etc.

**NURSERY 1**

Sharing in 1s through role play

Three teddies are having a picnic. I have 3 sandwiches. How many sandwiches will each bear get? Count sandwiches as they are given out. Then count how many sandwiches each bear has.
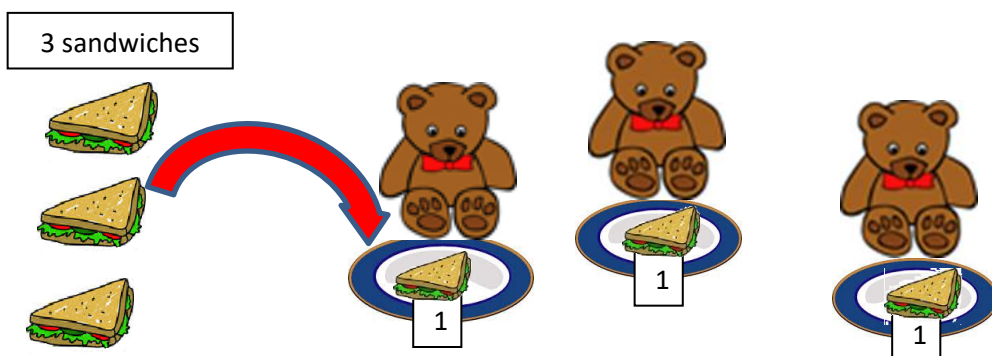
NURSERY 2

Investigate putting items into resources which are arrays

Share or put items into groups using resources such as egg boxes, ice cube trays and baking tins which are shaped liked arrays.
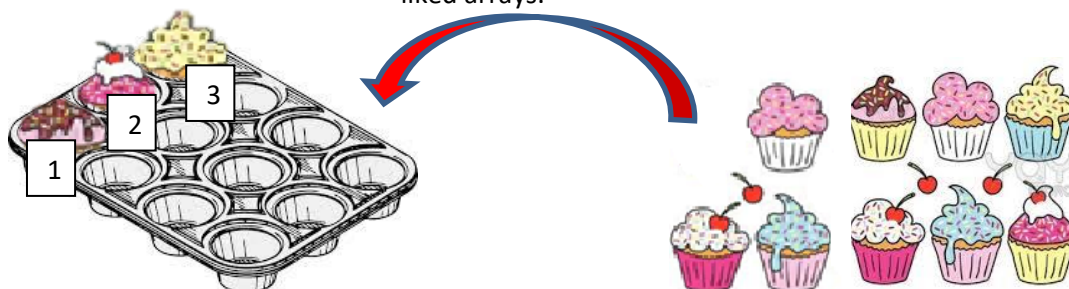
Count items as you place and encourage children to notice groups.

RECEPTION

Informally record observations through drawing
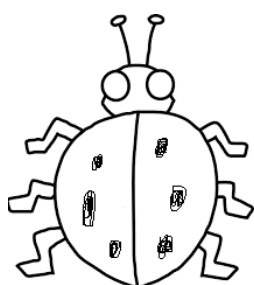
Develop ways of recording calculations using pictures.

Eg: Halving 6 spots on a ladybird.

Eg: Share 8 snacks between 2 children at snack time.

1

EARLY LEARNING DIVISION VOCABULARY:

YEAR 1 END OF YEAR MENTAL DIVISION OBJECTIVES:

*Begin to understand doubling numbers and quantities

(Use of apparatus including dice etc)

*Find simple fractions of objects, numbers and quantities.

***Count in 2s, 5s and 10s after sharing objects**

YEAR 1 END OF YEAR WRITTEN DIVISION OBJECTIVE:

Solve one-step problems involving division by calculating the answer using concrete objects, pictorial representations and arrays with the support of the teacher.

Children should continue to experience calculations involving concrete objects and jottings.

STEP 1:   Use concrete objects to divide.

If we share six apples between three of you, how many would you each get?

2

2

2
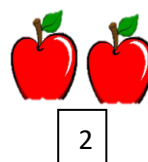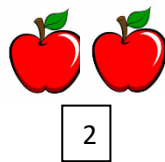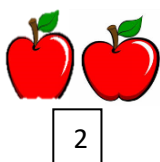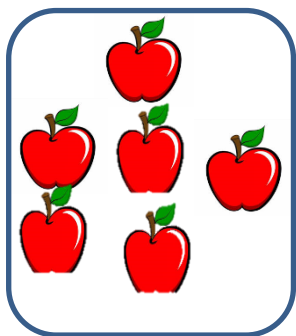
Give apples out counting in 1s or 2s to find the answer.

STEP 3: Familiarisation with arrays through use of concrete objects.

We have 6 eggs to make 3 cakes. If I use the same amount of eggs in Each cake, how many eggs will go in each cake?

Share the eggs into 3 groups then arrange in the egg box

Show the eggs in the box for children to recognise 3 groups.

STEP 3: Record calculations with pictorial representations

Draw pictures to show their working. Encourage children where possible to draw in an array.
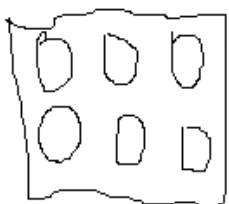
Gradually begin using unifix to represent concrete objects when children are ready.

Number line representation modelled alongside children's practical method.

3
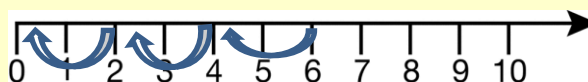
6 sweets into groups of 3

6 sweets into 3 groups

YEAR 1 DIVISION VOCABULARY: red words new to Year 1

lots of

groups of

double, halve

share

YEAR 2 END OF YEAR MENTAL DIVISION OBJECTIVES:

***Recall and use division facts from the 2, 5 and 10 times table, including recognising odd and even numbers.**

Children become fluent in these tables and connect to each other. Connect 10 x table to place value and 5 x table to divisions on a clock face.

***Understand and write linked division statements.**

       Eg 10 ÷ 2 = 5   10 ÷ 5 = 2

YEAR 2 END OF YEAR WRITTEN DIVISION OBJECTIVE:

Calculate mathematical statements for division within the multiplication tables (using repeated subtractions) and write them using the division (÷) and equals (=) signs. *Concrete objects and representations are used in teacher modelling - unifix apparatus is used by children.*

STEP 1: Show division as amounts shared into groups of items. Once grouped -count backwards in groups of to relate to subtraction.

Children share 15 unifix into 5 groups. Unifix to remain the same colour.
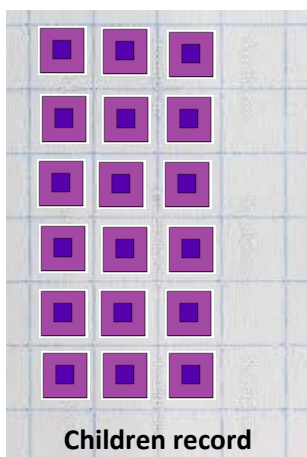

Children write 15 shared by 5 = 3

Children who are not secure with their 3 x table will use a number line to support.

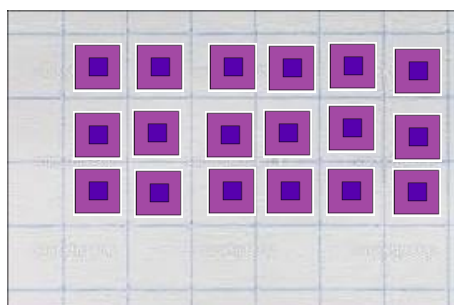**STEP 2: Children begin to use arrays to represent division**

Arrays created on squared paper or grid which can be rotated to show the associated division fact .

Children record

15 grouped into 3 = 15

15 grouped into 3 = 15

STEP 3: Record an array alongside re~~lated addition and subtraction sentence.~~
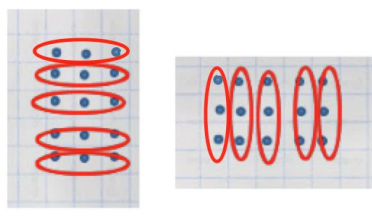
Children become familiar with various calculation sentences.

15 ÷ 5 =3   15 shared by 5 =3   15 grouped into 5 = 3

15 - 5 - 5 – 5   15 = 5 + 5 + 5

15 – 3 – 3 – 3 – 3 – 3   15 = 3 + 3 + 3 + 3 + 3

STEP 4: Solve problem involving remainders making appropriate decisions about what to do with remainders

I have £16. Books are £3 each. How many can I buy?

Answer: *5 (the remaining £1 is not enough for another book)*
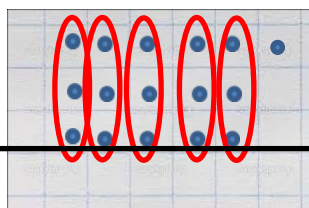
YEAR 2 DIVISION VOCABULARY: words in red new to Year 2

lots of

groups of

double, halve

share, share equally

one each, two each, three each…

group in pairs, threes… tens

equal groups of

÷, divide, divided by, divided into, left, left over

array

row, column

YEAR 3 END OF YEAR MENTAL DIVISION OBJECTIVES:

*Recall and use division facts for the 3, 4 and 8 times tables.

Children become fluent in these tables and connect the 2,4 and 8 times table through doubling and halving.

*Develop efficient mental division methods.

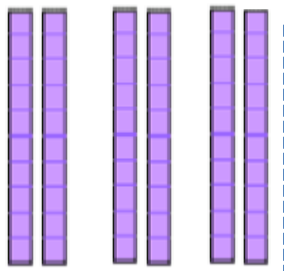Use associativity $60 \div 4 = 60 \div 2 \div 2 = 15$

Use division facts to derive and related facts $(30 \div 6 = 5$ $300 \div 6 = 50)$

YEAR 3 END OF YEAR WRITTEN DIVISION OBJECTIVE:

Write and calculate mathematical statements for division using the multiplication tables that they know, including for two-digit numbers divided by one-digit numbers, progressing to formal written methods.

STEP 1: Create arrays and swap for dienes where necessary.

6 tens shared between 3   3 shared by 3

$$63 \div 3 = \quad (60 \div 3 = 20) + (3 \div 3 = 1)$$

$$63 \div 3 = 21$$

STEP 2: Use more formal representation to divide a two-digit number by a single digit.

T	O
1	4
8	4

$^{2}6$
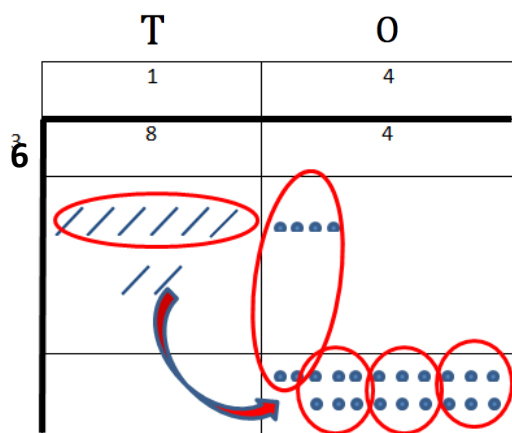
Exchange 2 tens for ones to enable sharing

$84 \div 6 = 14$

STEP 3: Use formal written method to divide a three-digit number by a single digit.

	10s	1s
	1	4
6	8	²4
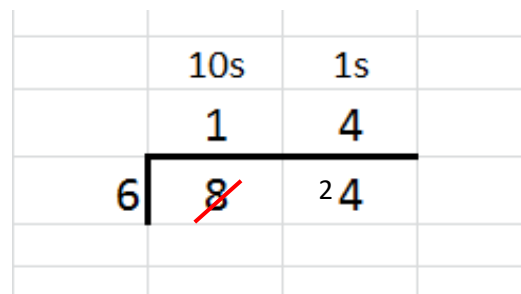
YEAR 3 DIVISION VOCABULARY: words in red new to Year 3

array

row, column

double, halve

share, share equally

one each, two each, three each…

group in pairs, threes… tens

equal groups of

÷, divide, division, divided by, divided into

left, left over, remainder

row, column

YEAR 4 END OF YEAR MENTAL DIVISION OBJECTIVES:

*Recall and use division facts up to 12 x 12.

Children become fluent in these tables and connect the 3,6 and 12 times table through doubling.

*Use place value, known and derived facts to divide mentally, including dividing by 1.

Extend mental methods to three-digit numbers to derive facts. (1200 ÷ 3 can be derived from 12 ÷ 3 = 4)

YEAR 4 END OF YEAR WRITTEN DIVISION OBJECTIVE:

Divide numbers up to three digits by a one-digit number using the formal written method of short division and interpret remainders appropriately for context.

STEP 1: Use a formal representation to divide numbers up to three-digits by one-digit numbers.
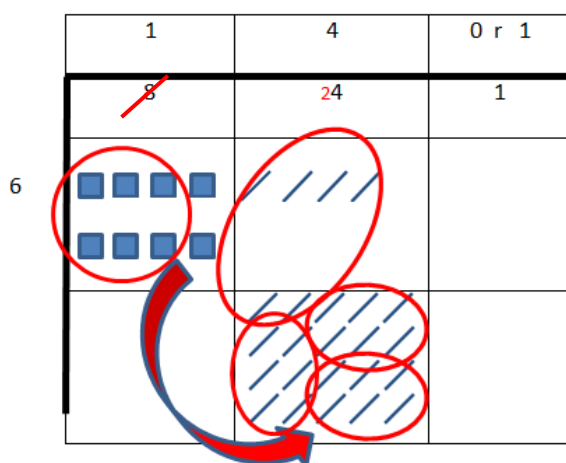
Exchange 2 hundreds for twenty tens to enable sharing

STEP 2: Use formal written method to divide a three-digit number by a single digit
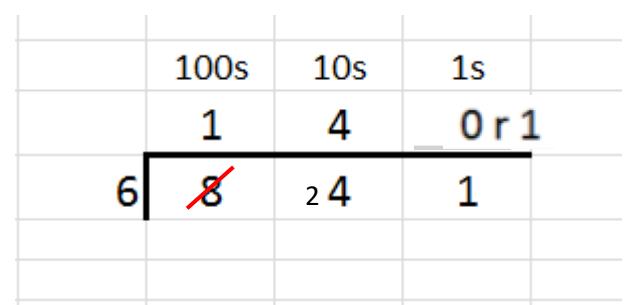
YEAR 4 DIVISION VOCABULARY: words in red new to Year 4

array, row, column

double, halve

share, share equally

one each, two each, three each…

group in pairs, threes… tens

equal groups of

divide, division, divided by, divided into, divisible by

remainder

factor, quotient

inverse

YEAR 5 END OF YEAR MENTAL MULTIPLICATION OBJECTIVES: [2]

*Identify factors of numbers, factor pairs of a number and common factors of 2 numbers
Apply all division facts to memory and use them confidently

*Divided numbers mentally drawing upon known facts

*Divided whole numbers and those involving decimals by 10, 100 and 1000

*Solve division problems using knowledge of factors.

*Solve multiplication problems including scaling by simple fractions and problems involving simple rates
Use division as an inverse to support introduction of ratio in Year 6, for example, by dividing by powers of 10 in scale drawings or by dividing by powers of 1000 in converting units such as kilometres and metres.

YEAR 5 END OF YEAR WRITTEN OBJECTIVE:
Divide numbers up to 4 digits by a one-digit number using the formal written method of short division and interpret remainders appropriately for the context
Children continue to experience use of dienes as a representation for understanding.

STEP 1: Use a formal representation to divide a 4 digit number by a one-digit number.

Same as Year 4 Step 1 but with 4 digit numbers

STEP 2: Use a formal written method to divide a 4 digit number by a one-digit number interpreting remainders appropriately for the context, including fractions.

Same as Year 4 Step 2 but with 4 digit numbers.
Interpret remainders appropriately – eg: £8126 divided by 4 = £231 remainder £2. The £2 must be divided by 4 leaving an answer of £231.50

YEAR 5 DIVISION VOCABULARY: **words in red new to Year 5**

array, row, column

double, halve

share, share equally

one each, two each, three each... group in pairs, threes... tens

equal groups of

divide, divided by, divided into, divisible by

remainder

factor, quotient, divisible by

inverse

YEAR 6 END OF YEAR MENTAL MULTIPLICATION OBJECTIVES:

*Perform mental division including mixed operations and large numbers

Continue to use division facts to calculate mathematical statements in order to maintain their fluency.

*Identify common factors

*Use knowledge of the order of operations to carry out calculations involving four operations

Explore the order of operations using brackets; for example, 2 + 1 ÷ 3 = 0.66 and (2 + 1) ÷ 3 = 1

*Use estimation to check answers to division and determine, in the context of a problem, an appropriate degree of accuracy.

Round answers to a specified degree of accuracy, for example, to the nearest 10,20,50 etc but not to a specified number of significant figures.

YEAR 6 END OF YEAR WRITTEN OBJECTIVE:

Divide numbers up to 4 digits by a two-digit number using the formal written method of short division where appropriate, interpreting remainders according to the context.

Use written division methods in cases where the answer has up to two decimal places

Step 1: Use formal representation to divide numbers with up to 4 digits by two-digit numbers

Use short division method, plus jottings.

STEP 2: Use formal written method to divide numbers with up to 4 digits by two- digit numbers
Same as Year 4 Step 2 but with 4 digit numbers divided by two-digit numbers.

STEP 3: Use formal written method in cases where the answer has up to two decimal places

14

		2		2	•	8		3	
6	1̶	1̶3		1̶7	•	5̶0		2 0	

Only calculate up to 2 decimal places – in cases where answers have more digits after the decimal point, round to the nearest hundredth.
Support this method visually with dienes and coins.

STEP 4: Use formal written method in cases where the question has up to two decimal places.

STEP 5: Use formal written method, with adjustment in cases where the question has decimals – e.g. 6.32 divided by 1.2.

YEAR 6 DIVISION VOCABULARY: words in red new to Year 6

array, row, column

double, halve

share, share equally

one each, two each, three each…

group in pairs, threes… tens

equal groups of

divide, division, divided by, divided into

remainder

factor, quotient, divisible by

inverse