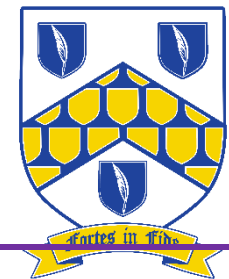


St Teresa's Catholic Primary School

Multiplication Subtraction Policy

Respect – Resilience – Read – Retain

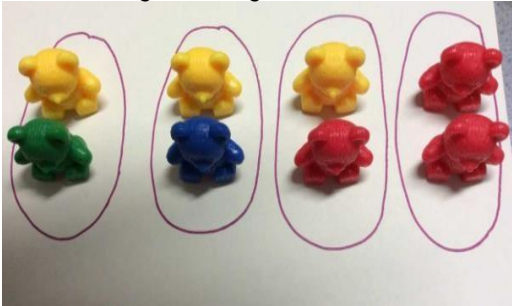
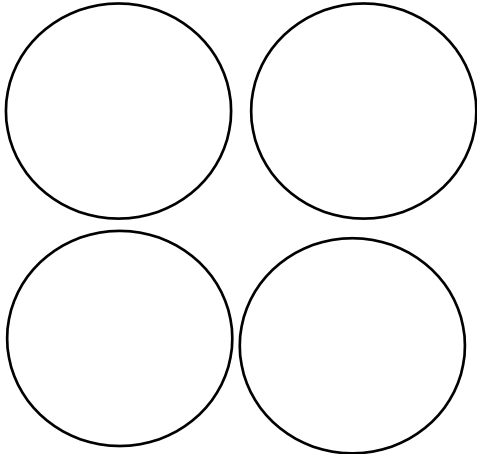
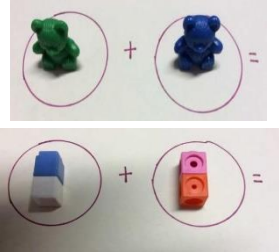
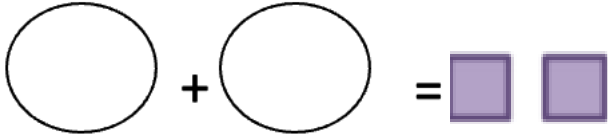
'Do the little things well'


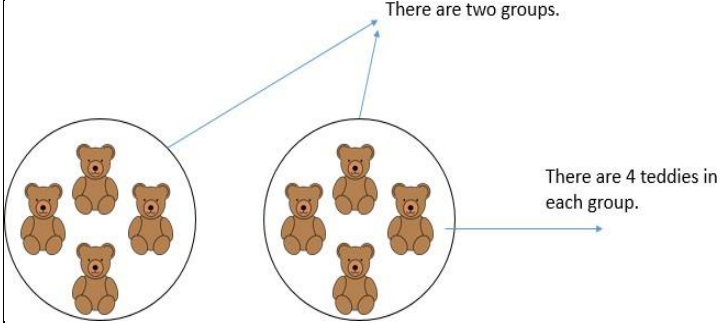


EYFS


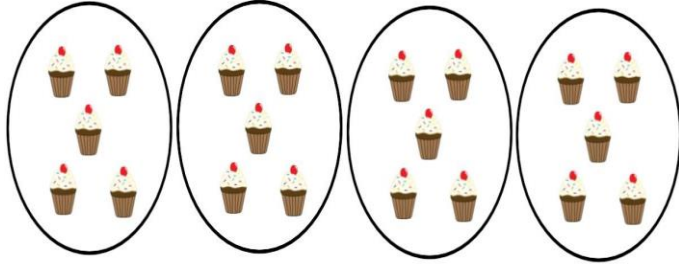
Key Vocabulary: multiplication, multiply, multiplied by, multiple, grouping, doubling, array

Times Tables: To count in steps of 2s and 10s and begin to count in 5s.

| | Objective and Strategies | Concrete | Pictorial | Abstract |
|------|---|---|---|--|
| EYFS | To count in steps of 2s and 10s and begin to count in steps of 5. | <p>Children will count in steps of 2s and 10s. They will begin to count in 5s.</p>  |  <p>Children will verbally say their number sequence aloud to demonstrate their understanding.</p> | <p>2, 4, 6, 8...</p> <p>10, 20, 30, 40...</p> <p>5, 10, 15, 20, 25, 30...</p> |
| | To be able to double numbers. | <p>Using practical activities using manipulative including uni-fix cubes to demonstrate doubling.</p>  | <p>Children will begin to draw pictures to demonstrate doubling.</p> <p>Double 1 equals 2.</p>  | <p>$1 + 1 = 2$</p> <p>Stem Sentence: Double 1 equals 2</p> |

| | | | | |
|--|---|---|--|---|
| | <p>To experience equal groups of objects.</p> | <p>Children will experience equal groups of objects. Children will be encouraged to count the groups, then count how many objects are in a group.</p> <p>E.g. $2 \times 4 =$</p>  | <p>Children will have images of equal groups to solve multiplication sentences by counting how many are in each equal group.</p>  | <p>$2 \times 4 = 8$</p> <p>Stem Sentence: I know there are <u>2</u> groups with <u>4</u> in each group.</p> |
|--|---|---|--|---|

Year 1

| | Objective and Strategies | Concrete | Pictorial | Abstract |
|--|---|---|---|--|
| | <p>To count in steps of 2, 5 and 10s.</p> | <p>Children will be able to use concrete resources to count in steps of 2, 5 and 10.</p>  | <p>Children will verbally say their number sequence aloud to demonstrate their understanding. Children would begin to count aloud and write numbers to match the sequence. E.g. 0, 5, 10, 15, 20...</p>  | <p>Children will be able to count aloud in sequences, starting at different points.</p> <p>Children will be able to write sequences with multiples of numbers 2, 4, 6, 8...</p> <p>10, 20, 30, 40...</p> <p>5, 10, 15, 20, 25, 30...</p> |

To make equal groups and count the total.

Children will use concrete resources to make equal groups.

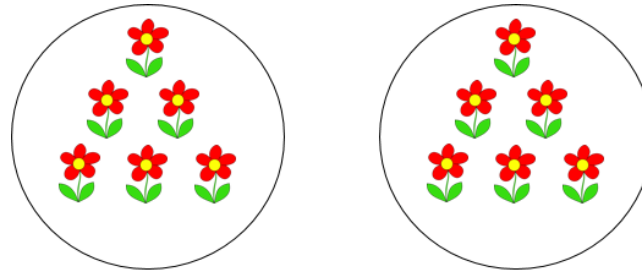


Stem Sentence: I know there are 2 groups with 6 in each group.



Children will draw jottings and have pictorial representations to demonstrate knowledge of equal groups.

$$2 \times 6 = 12$$



I know there are 2 groups and in each group there are 6 flowers.

$$2 \times 6 = 12$$

Stem Sentence: I know there are 2 groups with 6 in each group.

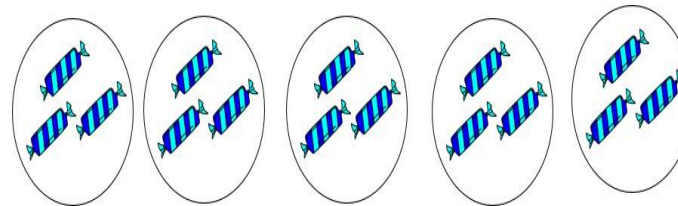
To understand multiplication as repeated addition.

Children will be able to use a range of concrete resources to add equal groups.

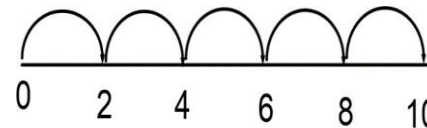


Children will use pictorial representations, including the use of a number line to solve problems.

There are 3 sweets in 1 bag. How many sweets are in 5 bags altogether?



$$3 + 3 + 3 + 3 + 3 = 15$$



Children will be able to write addition number sentences to describe pictures or objects.

$$3 + 3 + 3 + 3 + 3 = 15$$

To understand multiplication as arrays.

Children will create arrays using concrete objects, which they then can describe what it represent

e.g. 2 lots of 5, 3 lots of 10.

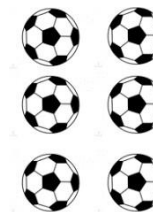


Children will draw their own pictorial representations and will have the visually provided to show understanding of arrays.

2 lots of 5



3 lots of 2.

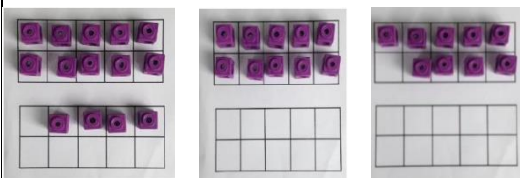


$$3 \times 2 = 6$$

$$2 \times 5 = 10$$

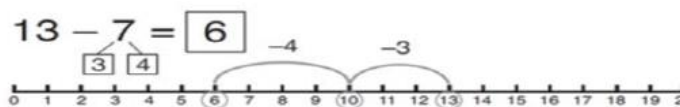
Make 10

$$14 - 9 =$$



Make 14 on the ten frame. Take away the four first to make 10 and then takeaway one more so you have taken away 5. You are left with the answer of 9.

Model with a number line.



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.

$$16 - 8 =$$

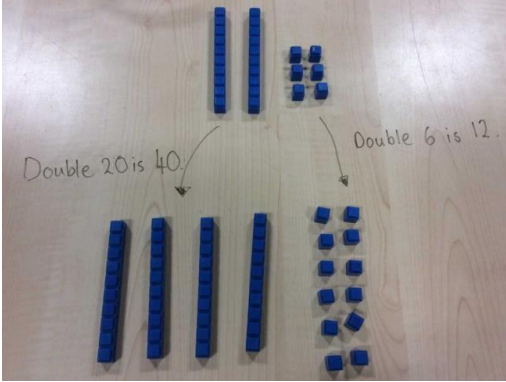
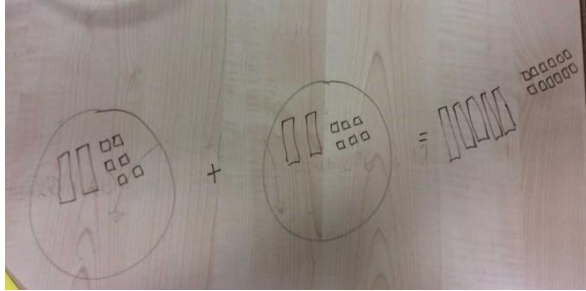
How many do we take off to reach the next 10?

How many do we have left to take off?

Year 2dition, add, more

Key Vocabulary: multiplication, multiply, multiplied by, multiple, grouping, doubling, array, row, column, groups of, times once, twice, three times ... ten times, repeated addition, one each, two each, three each ... ten each, equal groups of, multiplication table, multiplication fact.

Times Tables: children in Year 2 need to count in steps of 2, 3, 5 and 10s. w many fewer is...than...? How much lessis...? tens boundary, minuend, subtrahend, difference.

| | Objective and Strategies | Concrete | Pictorial | Abstract |
|--------|------------------------------|---|---|---|
| Year 2 | To double numbers up to 100. | <p>Model using base 10 to partition a number and then double the ones and the tens.</p> <p>Double 26 is 52</p>  | <p>Draw pictures and representations to show how to double numbers.</p> <p>Double 26 is 52</p>  | <p>Partition a number and then double each part before recombining back together.</p> $ \begin{array}{r} 26 \\ \swarrow \quad \searrow \\ 20 \quad 6 \\ \downarrow \times 2 \quad \downarrow \times 2 \\ 40 \quad + \quad 12 = 52 \end{array} $ |

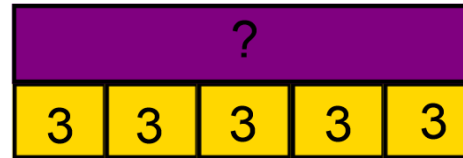
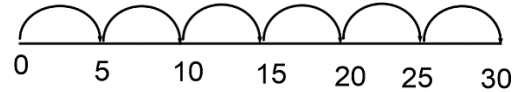
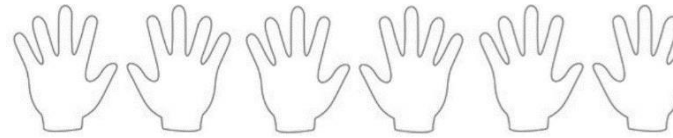
To count in multiples of 2s, 3s, 5s and 10s (repeated addition).

Count the groups as children are skip counting, children may use their fingers as they are skip counting.

Use bar models.



Number lines, counting sticks and bar models should be used to show representation of counting in multiples.



Count in multiples of a number aloud.

Write sequences with multiples of numbers. 0, 2, 4, 6, 8, 10

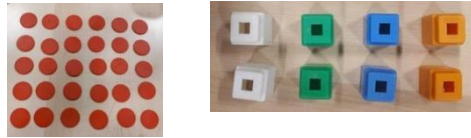
0, 3, 6, 9, 12, 15

0, 5, 10, 15, 20, 25, 30

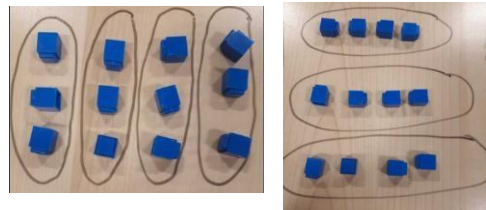
$4 \times 3 =$

To show that multiplication is commutative.

Children will create arrays using a variety of concrete resources, including cubes and counters.



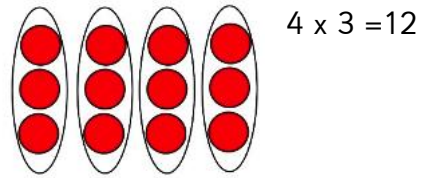
Pupils should understand that an array can represent different equations and that, as multiplication is commutative, the order of the multiplication does not affect the answer



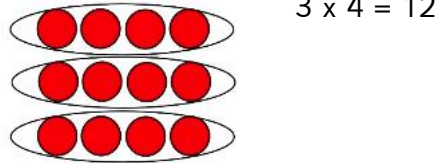
$$4 \times 3 = 12$$

$$3 \times 4 = 12$$

Children will use a range of pictures to represent arrays to show different calculations and show commutativity.



$$4 \times 3 = 12$$



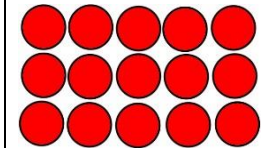
$$3 \times 4 = 12$$

Children will write the different multiplication sentences to show the commutative law.

$$12 = 3 \times 4$$

$$12 = 4 \times 3$$

Children will also be able to use an array to write multiplication number sentences and reinforce repeated addition.



$$3 + 3 + 3 + 3 + 3 = 15$$

$$5 \times 3 = 15$$

$$5 + 5 + 5 = 15$$

$$3 \times 5 = 15$$

To use related multiplication and division facts using the inverse for the 2, 3, 5 and 10 times table.

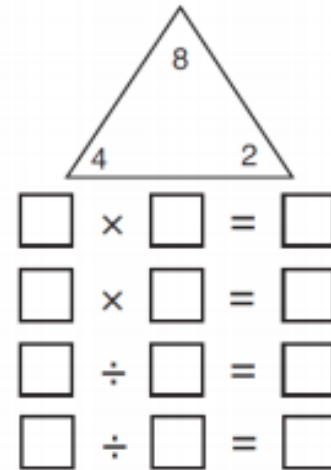
This will be taught alongside division to show how the numbers relate and build fluency.

Children will use concrete resources, including cubes to represent arrays. These will then form part of the learning process to explain number related facts and begin to write these in number form.

$$2 \times 4 = 8 \quad 4 \times 2 = 8$$
$$8 \div 2 = 4 \quad 8 \div 4 = 2$$



Children will use pictorial representations to solve missing number facts that demonstrate related facts.



Children will show all 8 related number sentences to demonstrate related facts.

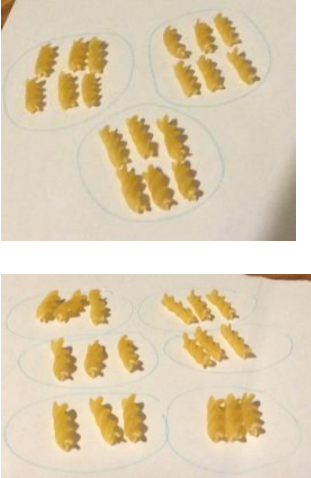
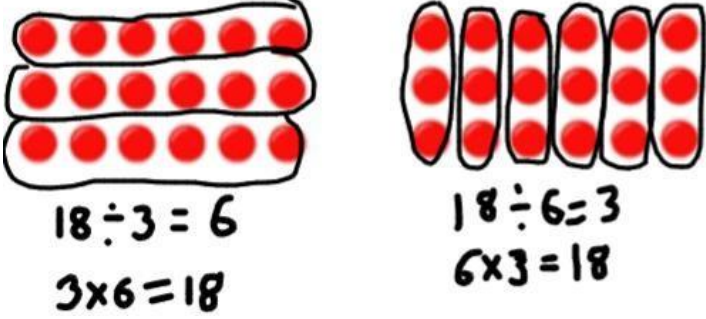
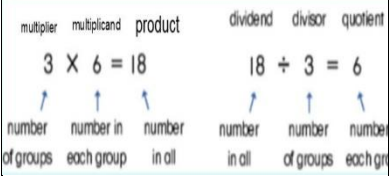
$$2 \times 4 = 8$$
$$4 \times 2 = 8$$
$$8 \div 2 = 4$$
$$8 \div 4 = 2$$
$$8 = 2 \times 4$$
$$8 = 4 \times 2$$
$$2 = 8 \div 4$$
$$4 = 8 \div 2$$

Year 3

Key Vocabulary: multiplication, multiply, multiplied by, multiple, factor, product, grouping, doubling, array, row, column, groups of, times once, twice, three times ... ten times, repeated addition,

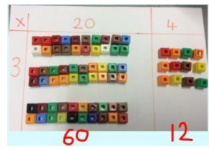
one each, two each, three each ... ten each, equal groups of, multiplication table, multiplication fact.

Times tables- Children in Year 3 need to be able to confidently count in steps of 2, 3, 4, 5, 8, 10, 50 and 100.

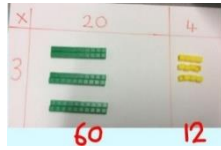
| | Objective and Strategies | Concrete | Pictorial | Abstract |
|--------|---|---|---|---|
| Year 3 | <p>To use related multiplication and division facts using the inverse for the 2, 3, 4, 5, 8 and 10 times table.</p> | <p>Children understand the link between multiplication and division and use physical objects to find related facts.</p> <p> $3 \times 6 = 18$ $18 \div 3 = 6$ $6 \times 3 = 18$ $18 \div 6 = 3$ </p>  | <p>Children represent an array pictorially then find the associated multiplication and division facts by sorting into equal groups.</p>  | <p>Children apply their understanding of inverse relationships to write related multiplication and division statements.</p> <p> $3 \times 6 = 18$ $18 = 3 \times 6$ $6 \times 3 = 18$ $18 = 6 \times 3$ $18 \div 3 = 6$ $6 = 18 \div 3$ $18 \div 6 = 3$ $3 = 18 \div 6$ </p> <p>They use associated vocabulary correctly and know what each number represents in the calculation.</p>  |
| | <p>To use a formal written method of multiplication (grid method).</p> | <p>Children use partitioning to multiply numbers using the grid method. They partition the multiplicand and multiply each part by the multiplier. Children use base ten and place value counters to represent arrays of the partitioned number.</p> <p>$24 \times 3 = 72$</p> | <p>Children show their understanding by represent the calculation in the grid using their own pictorial representation.</p> | <p>Formal Method</p> <p>The children use the grid method for larger numbers. They multiply numbers by first partitioning the multiplicand and then multiplying each part by the multiplier. In year 3 children are expected to multiply 2-digit by a 1 digit number.</p> |

2-digit x 1 digit number

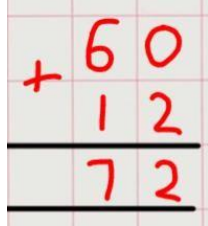
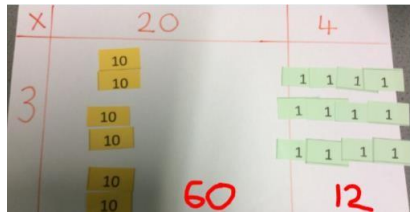
Use of unit cubes



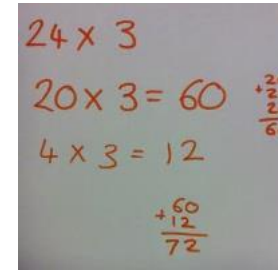
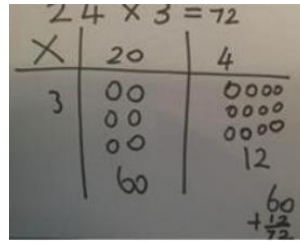
use of base 10



Use of place value counters finding the total



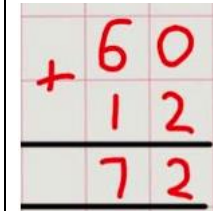
$24 \times 3 = 72$



Children use jottings to partition the multiplicand and multiply each part by the multiplier.

$24 \times 3 = 72$

| | | |
|---|----|----|
| X | 20 | 4 |
| 3 | 60 | 12 |



Children apply their knowledge of multiplication to word problems.

There are 5 balloons in a packet. There are 18 packets in a box. How many balloons are there altogether in a box?

Year 4

one each, two each, three each...ten each, equal groups of, multiplication table, multiplication fact, inverse, square, squared, cube, cubed, distributive law.

Times tables- Children in Year 4 need to be able to confidently count in steps of 2, 3, 4, 5, 6, 7, 8, 9, 10, 11 and 12.

Objective and Strategies

Concrete

Pictorial

Abstract

To recall multiplication and division facts for multiplication tables up to 12x 12.

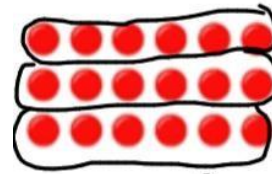
Children continue to deepen their understanding of the link between multiplication and division and use physical objects to find related facts.

$$3 \times 6 = 18 \quad 18 \div 3 = 6$$

$$6 \times 3 = 18 \quad 18 \div 6 = 3$$



Children represent an array pictorially then find the associated multiplication and division facts by sorting into equal groups.



$$18 \div 3 = 6$$

$$3 \times 6 = 18$$



$$18 \div 6 = 3$$

$$6 \times 3 = 18$$

Children apply their understanding of inverse relationships to write related multiplication and division statements.

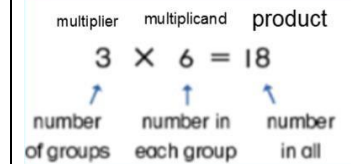
$$3 \times 6 = 18 \quad 18 = 3 \times 6$$

$$6 \times 3 = 18 \quad 18 = 6 \times 3$$

$$18 \div 3 = 6 \quad 6 = 18 \div 3$$

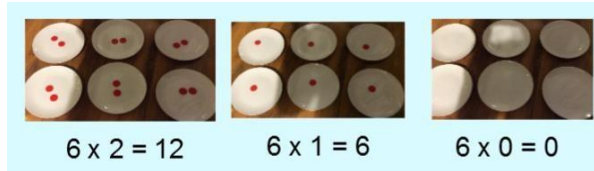
$$18 \div 6 = 3 \quad 3 = 18 \div 6$$

They use associated vocabulary correctly and know what each number represents in the calculation.



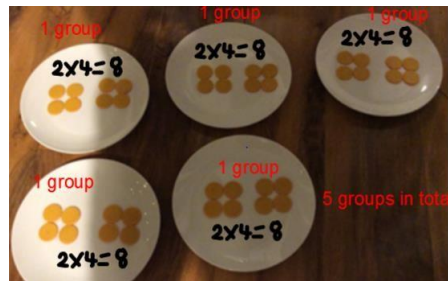
To multiply and divide mentally, including: multiplying by 0 and 1 and multiplying together 3 numbers.

Children multiply and divide numbers by zero and one. They understand the meaning of the calculation and the need of equal sized groups.

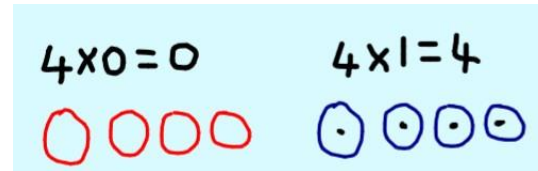


Children use objects to calculate totals when three numbers are multiplied together.

$$2 \times 4 \times 5 = 40$$

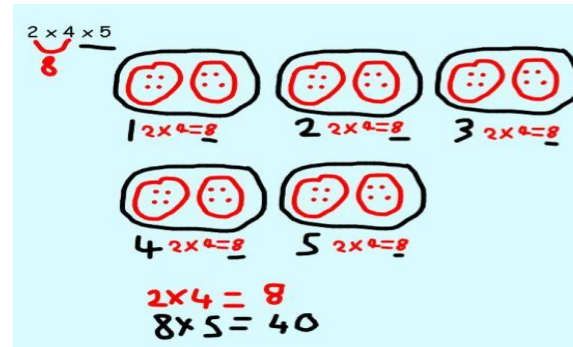


Children show their understanding of multiplying by 0 and 1 by drawing representations.



Children use objects to calculate totals when three numbers are multiplied together.

$$2 \times 4 \times 5 = 40$$



Or they may decide to represent it as $2 \times (4 \times 5)$ $2 \times (20) = 40$

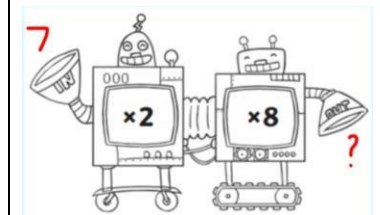
Children understand how to multiply by 1 and 0 and apply to word problems.

$$1 \times 83 = \quad 76 \times 1 =$$

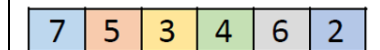
$$4567 \times 0 = \quad 0 \times 23 =$$

Jack earns £12 a week on his paper round. He did not work for one week whilst he was on holiday. How much did he earn?

Children solve number puzzles using the knowledge of multiplying 3 single digit numbers.



Make the target number 30 by using three of the digits below.



$$\underline{\quad} \times \underline{\quad} \times \underline{\quad} = 30$$

Year 5

Key Vocabulary: multiplication, multiply, multiplied by, multiple, factor, product, grouping, doubling, array, row, column, groups of, times once, twice, three times ... ten times, repeated addition, one each, two each, three each ... ten each, equal groups of, multiplication table, multiplication fact, inverse, square, squared, cube, cubed, distributive law.

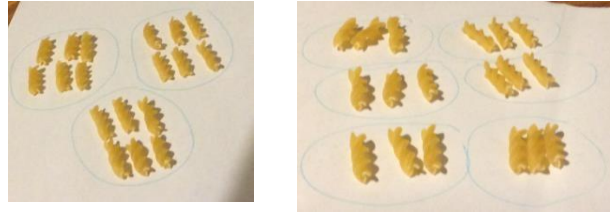
Times tables- Children in Year 5 need to be able to confidently count in steps of 2, 3, 4, 5, 6, 7, 8, 9, 10, 11 and 12
Counting Fluency: To count backwards and forwards in steps of 2s, 3s, 4s, 5s, 6s, 7s, 8s, 9s, 10s, 11s, 12s, 100s and 1000s from any given starting numb

| | | | | |
|--|--------------------------|----------|-----------|----------|
| | Objective and Strategies | Concrete | Pictorial | Abstract |
|--|--------------------------|----------|-----------|----------|

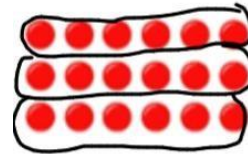
To recall multiplication and division facts for multiplication tables up to 12x 12.

Children continue to deepen their understanding of the link between multiplication and division and use physical objects to find related facts.

$3 \times 6 = 18$ $18 \div 3 = 6$ $6 \times 3 = 18$ $18 \div 6 = 3$



Children represent an array pictorially then find the associated multiplication and division facts by sorting into equal groups.



$18 \div 3 = 6$
 $3 \times 6 = 18$



$18 \div 6 = 3$
 $6 \times 3 = 18$

Children apply their understanding of the inverse relationships to write related multiplication and division statements.

$3 \times 6 = 18$ $18 = 3 \times 6$

$6 \times 3 = 18$ $18 = 6 \times 3$

$18 \div 3 = 6$ $6 = 18 \div 3$

$18 \div 6 = 3$ $3 = 18 \div 6$

| multiplier | multiplicand | product | dividend | divisor | quotient |
|------------------|----------------------|---------------|---------------|------------------|----------------------|
| 3 | × | 6 = 18 | 18 | ÷ | 3 = 6 |
| number of groups | number in each group | number in all | number in all | number of groups | number in each group |

They use associated vocabulary correctly and know what each number represents in the calculation.

To use a formal written method of multiplication (short multiplication).

Up to 4-digit x 1 digit number

Children represent calculations using the place value counters and base ten equipment. They solve in a columnar form and begin by multiplying the ones, then the tens then the hundreds then the thousands before finding the total.

$$2741 \times 6 = 16,446$$

$$1 \times 6 = 6$$

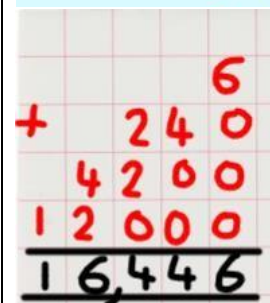
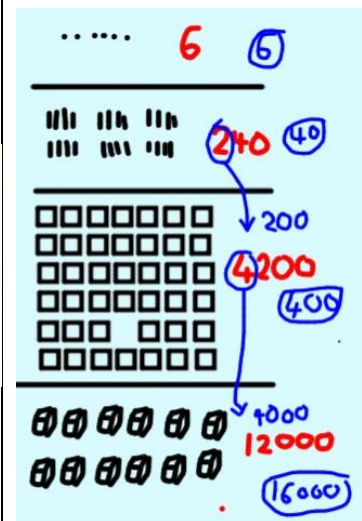
$$40 \times 6 = 240$$

$$700 \times 6 = 4,200$$

$$2000 \times 6 = 12,000$$



Children represent the calculation by drawing pictorial representations. They partition the multiplicand then multiply each part by the multiplier. They understand the place value and can confidently exchange between columns. This leads to the condensed method.



Formal Method

In year 5 children are expected to multiply numbers up to a 4-digit by a 1 digit number.

The children continue to use the condensed method of short multiplication but with larger numbers. The number is carried underneath between columns.

342 x 7 becomes

$$\begin{array}{r} 342 \\ \times 7 \\ \hline 2394 \\ 21 \end{array}$$

2741 x 6 becomes

$$\begin{array}{r} 2741 \\ \times 6 \\ \hline 16446 \\ 42 \end{array}$$

To recognise and use square numbers and cube numbers.

Children use resources to explore squared and cubed numbers.

Square numbers

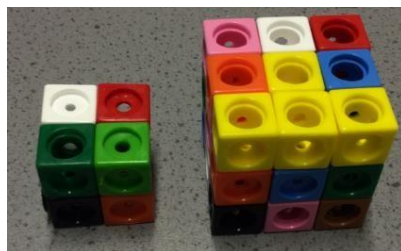


4

9

16

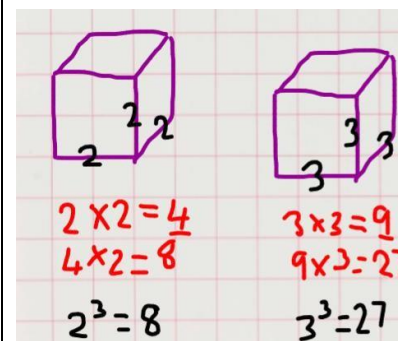
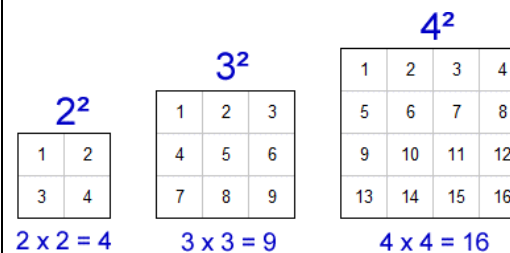
Cubed numbers



8

27

Children represent squared and cubed numbers pictorially. They use the correct notation for squared (2) and cubed (3).



Children can find and recognise squared and cubed numbers and use the correct notation for squared (2) and cubed (3).

2^2 or $2 \times 2 = 4$

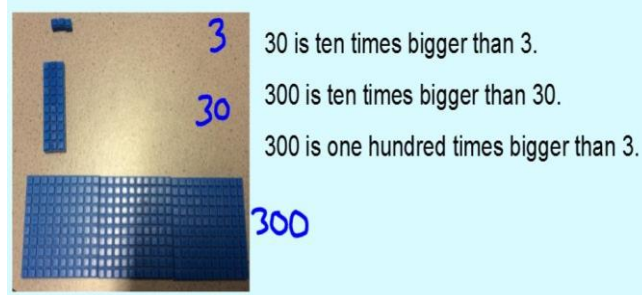
3^2 or $3 \times 3 = 9$

4^2 or $4 \times 4 = 16$

$1^3 = 1 \times 1 \times 1 = 1$
 $2^3 = 2 \times 2 \times 2 = 8$
 $3^3 = 3 \times 3 \times 3 = 27$
 $4^3 = 4 \times 4 \times 4 = 64$

To multiply whole numbers and those involving decimals by 10, 100 and 1,000

Children use resources to understand what 10, 100 and 1000 times bigger looks like.



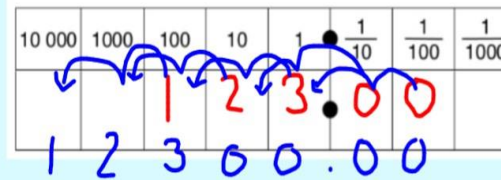
Children use place value grids to multiply numbers by 10, 100 and 1000s. They understand the movement of the digits on the place value grid.

Multiplying

X 10 digits move LEFT 1 space
 X 100 digits move LEFT 2 spaces
 X 1000 digits move LEFT 3 spaces

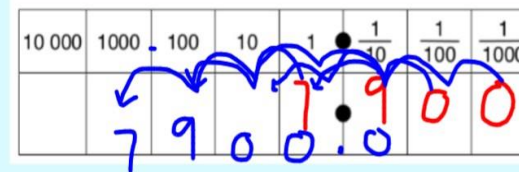


$$123 \times 100 = 12300$$



They apply this knowledge to decimal numbers.

$$7.9 \times 1000 = 7900$$



Children apply their knowledge of place value to multiply numbers by 10, 100 and 1000, including decimal numbers.

$$34 \times 100 = 3400$$

$$1234 \times 1000 = 1234000$$

$$5.6 \times 10 = 56$$

$$12.367 \times 100 = 1236.7$$

They apply their knowledge to word and number puzzles.

Complete these calculations.

$$15 \times 100 = \boxed{}$$

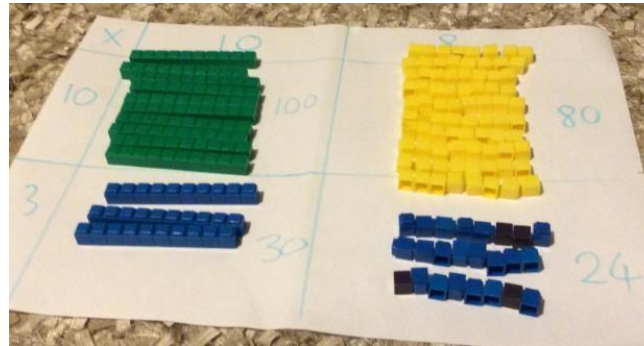
$$\boxed{} \times 10 = 1500$$

Breen Airways charges £1600 for a return flight to Australia. King Airlines is ten times cheaper. How much do King Airlines charge?

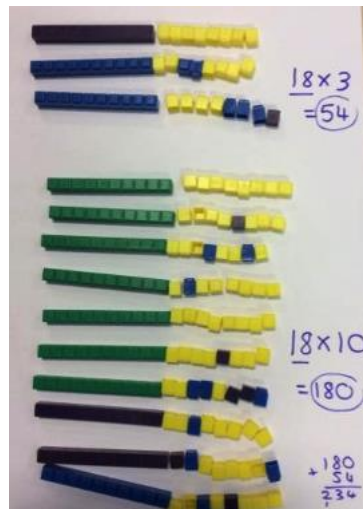
Children represent calculations using the place value

Children represent calculations using the place value.

$$18 \times 13 = 234$$

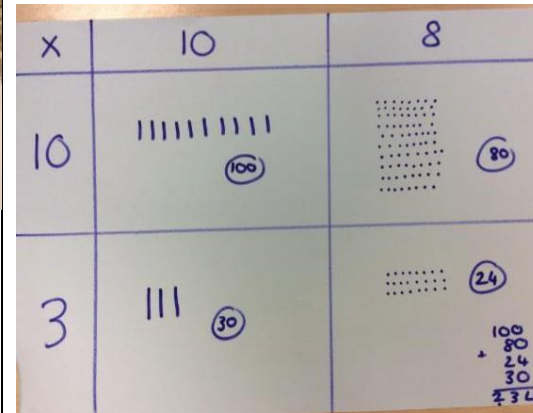


Children then solve in a columnar form. They begin by multiplying the ones, then the tens, then the hundreds and then the thousands. Finally they find the total.



Children will first use their knowledge of place value to partition the multiplicand and multiplier. They then show their understanding pictorially in a grid method.

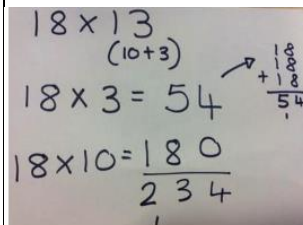
$$18 \times 13 = 234$$



Children then move towards the columnar method by representing each stage with jottings.

Children are encouraged to multiply the ones first.

$$18 \times 13 = 234$$



Children will first secure their understanding using the grid method.

$$18 \times 13 = 234$$

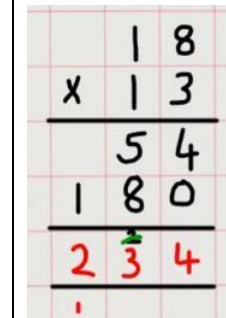
$$\begin{array}{r} \times 108 \\ 10080 \\ 3024 \\ \hline 23400 \end{array}$$

$$10 \quad 100 \quad 80$$

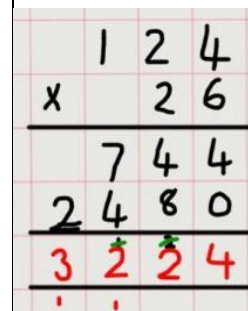
$$3 \quad 30 \quad 24$$

They will then move on to a more condensed method of long multiplication.

$$18 \times 13 = 234$$



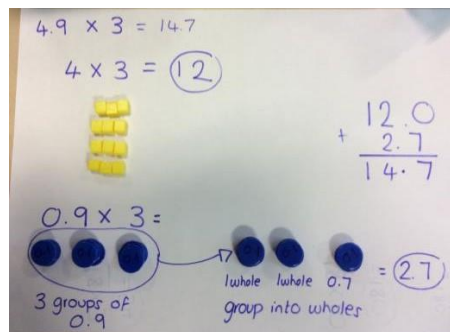
$$124 \times 26 = 3224$$



To use a formal written method of multiplication to multiply number up to 2 decimal places (grid method).

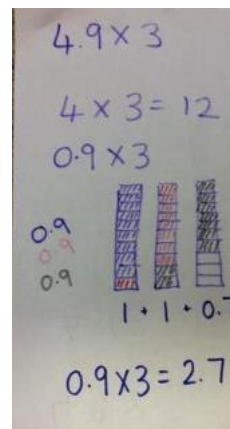
Children represent calculations using the place value counters and base ten equipment. They partition the decimal number and multiply by the multiplier. They then find the total.

$$4.9 \times 3 = 14.7$$



Children continue to multiply decimal numbers by partitioning the decimal number. They draw pictorial representations and use jottings to find the total.

$$4.9 \times 3 = 14.7$$



Using the grid method, children will be able to multiply decimals with one decimal place by a single digit number. They should know that the decimal points line up under each other and place holders are added.

$$4.9 \times 3 = 14.7$$

| | | |
|--|----|-----|
| | | |
| | 12 | 2.7 |

| | | |
|--|-------|--|
| | | |
| | 12.0 | |
| | 2.7 | |
| | <hr/> | |
| | 14.7 | |

Year 6

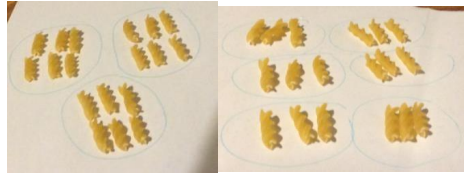
Key Vocabulary: multiplication, multiply, multiplied by, multiple, factor, product, grouping, doubling, array, row, column, groups of, times once, twice, three times ... ten times, repeated addition, one each, two each, three each ... ten each, equal groups of, multiplication table, multiplication fact, inverse, square, squared, cube, cubed.

Times tables-children in Year 4 needs to be able to confidently count in steps of 2, 3, 4, 5, 6, 7, 8, 9, 10, 11 and 12.

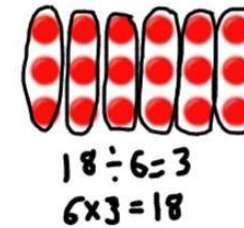
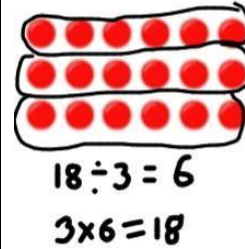
To recall multiplication and division facts for multiplication tables up to 12x 12.

Children continue to deepen their understanding of the link between multiplication and division and use physical objects to find related facts.

$3 \times 6 = 18$ $18 \div 3 = 6$ $6 \times 3 = 18$ $18 \div 6 = 3$



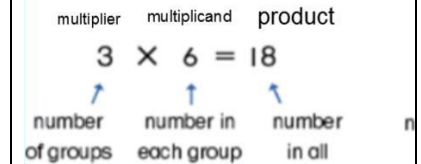
Children represent an array pictorially then find the associated multiplication and division facts by sorting into equal groups.



Children apply their understanding of inverse relationships to write related multiplication and division statements.

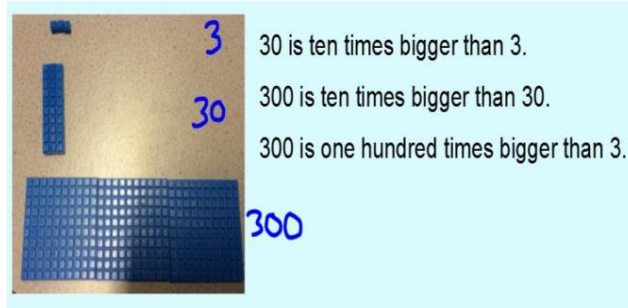
$3 \times 6 = 18$ $18 = 3 \times 6$
 $6 \times 3 = 18$ $18 = 6 \times 3$
 $18 \div 3 = 6$ $6 = 18 \div 3$
 $18 \div 6 = 3$ $3 = 18 \div 6$

They use associated vocabulary correctly and know what each number represents in the calculation.



To multiply whole numbers and those involving decimals by 10, 100 and 1,000

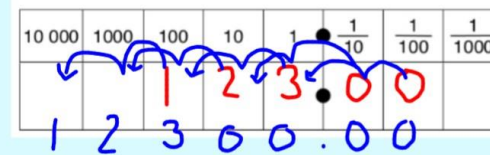
Children use resources to understand what 10, 100 and 1000 times bigger looks like.



Children use place value grids to multiply numbers by 10, 100 and 1000s.

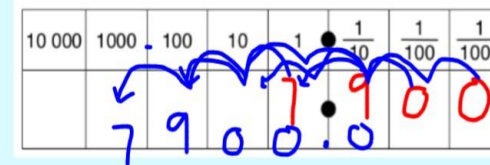
They understand the movement of the digits left on the place value grid.

$$123 \times 100 = 12300$$



They apply this knowledge to decimal numbers.

$$7.9 \times 1000 = 7900$$



Children apply their knowledge of place value to multiply numbers by 10, 100 and 1000, including decimal numbers.

$$34 \times 100 = 3400$$

$$1234 \times 1000 = 1234000$$

$$5.6 \times 10 = 56$$

$$12.367 \times 100 = 1236.7$$

They apply their knowledge to word and number puzzles.

Here are five number cards.



Use four of the cards to complete these calculations.

$$47 \div \square = \square$$

$$\square \times \square = 40.7$$

To use a formal written method of multiplication to multiply number up to 2 decimal places (grid method).

Decimal numbers x 1 digit number

Children represent calculations using the place value counters and base ten equipment. They partition the decimal number and multiply by the multiplier. They then find the total.

$$4.92 \times 3 = 14.76$$

4.92 x 3
 $4 \times 3 = 12$
 $0.9 \times 3 = 2.7$
 $0.02 \times 3 = 0.06$
 12.00
 $+ 2.70$
 0.06
 $\hline 14.76$

Children continue to multiply decimal numbers by partitioning the decimal number. They draw pictorial representations and use jottings to find the total.

$$4.92 \times 3 = 14.76$$

4.92 x 3
 $4 \times 3 = 12$
 $0.9 \times 3 = 2.7$
 $0.02 \times 3 = 0.06$
 12.00
 $+ 2.70$
 0.06
 $\hline 14.76$

Formal method

Using the grid method, children will be able to multiply decimals with up to two decimal places by a single digit number. They should know that the decimal points line up under each other and zeros are added at place holders.

$$4.92 \times 3$$

| | | | |
|----------|----------|------------|-------------|
| X | 4 | 0.9 | 0.02 |
| 3 | 12 | 2.7 | 0.06 |

Children will move onto using the condensed method.

| | | | | |
|---|-------|---|---|---|
| | 4 | 9 | 2 | |
| X | 3 | | | |
| | <hr/> | | | |
| | 1 | 4 | 7 | 6 |
| | | | | 2 |

To use a formal written method of multiplication (short multiplication).

Multi-digit numbers x 1 digit number

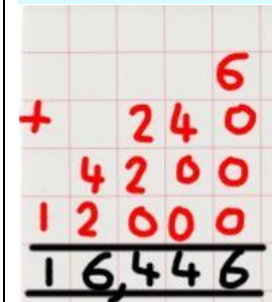
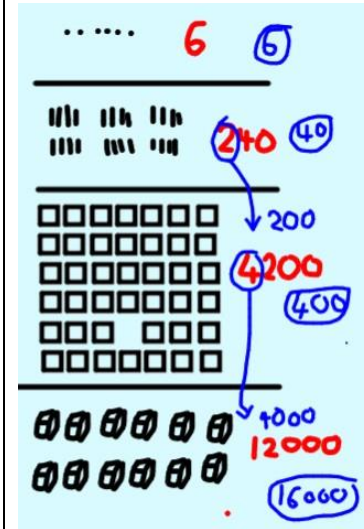
Children represent calculations using the place value counters and base ten equipment. They solve in a columnar form and begin by multiplying the ones, then the tens then the hundreds then the thousands before finding the total.

$$2741 \times 6 = 16,446$$



$$\begin{aligned} 1 \times 6 &= 6 \\ 40 \times 6 &= 240 \\ 700 \times 6 &= 4,200 \\ 2000 \times 6 &= 12,000 \end{aligned}$$

Children represent the calculation by drawing pictorial representations. They partition the multiplicand then multiply each part by the multiplier. They understand the place value and can confidently exchange between columns. This leads to the condensed method.



Formal Method

In year 6 children are expected to multiply multi digit numbers by a 1 digit number.

The children continue to use the condensed method of short multiplication. The number is carried underneath.

342 x 7 becomes

$$\begin{array}{r} 342 \\ \times 7 \\ \hline 2394 \\ \hline 21 \end{array}$$

2741 x 6 becomes

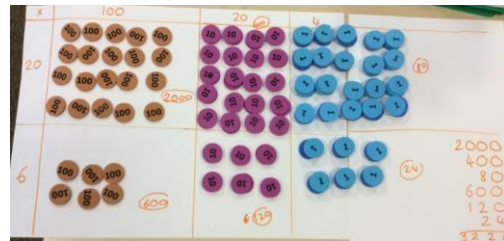
$$\begin{array}{r} 2741 \\ \times 6 \\ \hline 16446 \\ \hline 42 \end{array}$$

To use a formal written method of multiplication (long multiplication)

Multi-digit x 2 digit number

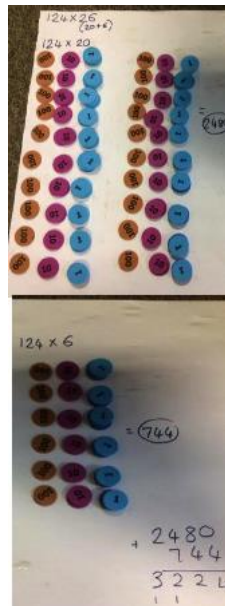
Children represent calculations using the place value counters using the grid method.

$$124 \times 26 = 3224$$



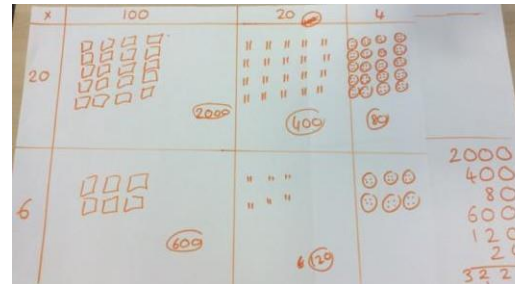
They then solve calculations in a columnar form and begin by multiplying the ones, the tens then the hundreds then the thousands before finding the total.

$$124 \times 26 = 3224$$



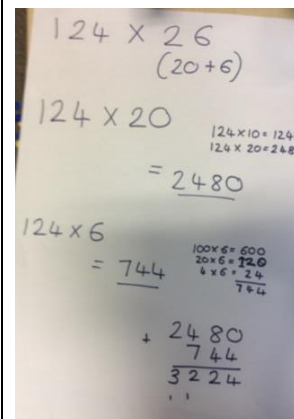
Children will first use their knowledge of place value to partition the multiplicand and multiplier. They then show their understand pictorially in a grid method.

$$124 \times 26 = 3224$$



$$124 \times 26 = 3224$$

Children then move towards the columnar method by representing each stage with jottings. Children are encouraged to multiply the ones first.



Formal Method

In year 6 children are expected to multiply multi digit numbers by a 2 digit number. The children are introduced to long multiplication. The number is carried underneath.

$$124 \times 26 = 3224$$

Step 1: Multiply the multiplier by the multiplicand. Start with the ones, multiply 6 by 4 (24). Write the 4 in the ones column and carry the 20 below the line.

Step 2: Multiply the 6 by 20 (120) and add the 2 (122). Cross off the carried 20. Write the 4 in the tens column and carry the 100 below the line.

Step 3: Multiply the 6 by 100 (600) and add the 100 (700). Cross off the carried 100. Write the 7 in the hundreds.

Step 4: Move to the tens column on the multiplier and start a new line. Multiply the 20 by 4 (80) and record.

Step 5: Multiply the 20 by 20 (400) and record. Then multiply the 20 by the 100 (200) and record.

Step 6: Total the numbers.

| | | | | |
|-------|---|---|---|--|
| | 1 | 2 | 4 | |
| x | | 2 | 6 | |
| <hr/> | | | | |
| | 7 | 4 | 4 | |
| 2 | 4 | 8 | 0 | |
| <hr/> | | | | |
| 3 | 2 | 2 | 4 | |
| . | . | | | |

4 digit x 2 digit

$$1234 \times 16 = 19,744$$

| | | | | | |
|-------|---|---|---|---|--|
| | 1 | 2 | 3 | 4 | |
| x | | | 1 | 6 | |
| <hr/> | | | | | |
| | 7 | 4 | 0 | 4 | |
| 1 | 2 | 3 | 4 | 0 | |
| <hr/> | | | | | |
| 1 | 9 | 7 | 4 | 4 | |