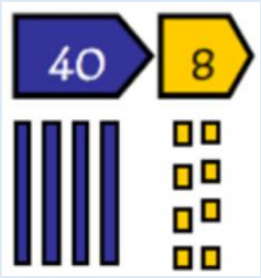
Multiplication

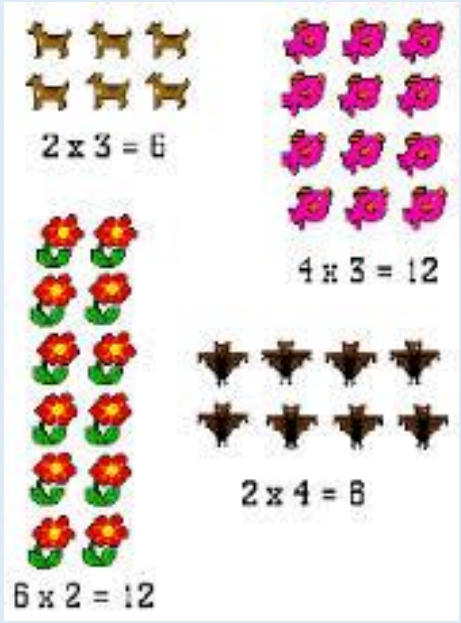
PiXL PRIMARY Maths

Concrete resources

Place value counters
Dienes
Place value charts
Arrays
Multiplication squares
100 square
Number lines
Blank number lines
Counting stick

1	2	3	4	5	6	7	8	9	10
2	4	6	8	10	12	14	16	18	20
3	6	9	12	15	18	21	24	27	30
4	8	12	16	20	24	28	32	36	40
5	10	15	20	25	30	35	40	45	50
6	12	18	24	30	36	42	48	54	60
7	14	21	28	35	42	49	56	63	70
8	16	24	32	40	48	56	64	72	80
9	18	27	36	45	54	63	72	81	90
10	20	30	40	50	60	70	80	90	100





multiplication product
once, twice, three times
double groups of
repeated addition lots of
array, row, column multiply
times multiple

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Multiplication: Year 3

Maths

Develop recall of multiplication facts (alongside inverse of the corresponding division facts).

x	3	4	8
5			
6			
4			

x	4	?	?
?	8	6	10
6	24	18	30
?	32	24	40

12 x 4 = 48

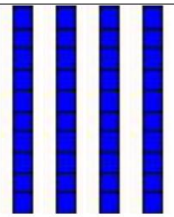
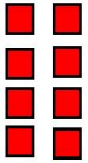
Year 3 statutory requirements:

✓Recall and use multiplication and division facts for the 3, 4 and 8 multiplication tables.

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

✓Solve problems, including missing number problems, involving multiplication including positive integer scaling problems and correspondence problems in which n objects are connected to m objects.

Use concrete resources to develop conceptual understanding of the compact method introduced in Year 4.

x	10	2
4		

OR

x	10	2
4	40	8

$$\begin{array}{r} 10 + 2 \\ \times \quad 4 \\ \hline 8 \\ 40 \\ \hline 48 \end{array}$$

5cm

?cm

The yellow ribbon is 4 times as long as the red ribbon. What is it's length?

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3 6
X4

Multiplication: Year 4

Year 4 statutory requirement:
✓ Recall multiplication and division facts for multiplication tables up to 12 × 12
✓Use place value, known and derived facts to multiply and divide mentally, including: multiply two-digit and three-digit numbers by a one-digit number using formal written layout.
✓Solve problems involving multiplying and adding, including using the distributive law to multiply two digit numbers by one digit, integer scaling problems and harder correspondence problems such as n objects are connected to m objects.

X	1	2	3	4	5	6	7	8	9	10	11	12
1	1	2	3	4	5	6	7	8	9	10	11	12
2	2	4	6	8	10	12	14	16	18	20	22	24
3	3	6	9	12	15	18	21	24	27	30	33	36
4	4	8	12	16	20	24	28	32	36	40	44	48
5	5	10	15	20	25	30	35	40	45	50	55	60
6	6	12	18	24	30	36	42	48	54	60	66	72
7	7	14	21	28	35	42	49	56	63	70	77	84
8	8	16	24	32	40	48	56	64	72	80	88	96
9	9	18	27	36	45	54	63	72	81	90	99	108
10	10	20	30	40	50	60	70	80	90	100	110	120
11	11	22	33	44	55	66	77	88	99	110	121	132
12	12	24	36	48	60	72	84	96	108	120	132	144

Develop recall of multiplication facts (alongside the inverse of the corresponding division facts).

Build on learning from Year 3 and model how grid method and/or expanded method links to compact short multiplication.

x	30	6
4	10 10 10 10 10 10 10 10 10 10 10 10	1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1

30 + 6
x 4
24
+ 120
144

3 6
x 4
144
2

2 eggs
150g flour
180g sugar

Use knowledge of times tables to solve scaling problems.

Susie wants to bake 12 cupcakes people.
The ingredients given are for four cupcakes.
How much flour will she need?

Cupcakes	Flour
4	150g
12	900g

x3

x3

Multiplication: Year 5

Year 5 statutory requirements:
✓Multiply numbers up to 4 digits by a one- or two-digit number using a formal written method, including long multiplication for two-digit numbers.
✓Multiply and divide whole numbers and those involving decimals by 10, 100 and 1000

Build on learning from Year 4 and use concrete resources if needed to multiply numbers up to 4 digits by **one digit** using compact short multiplication.

643 x 8

3 2
643
x 8
5144

x	600	40	3
50	30,000	2,000	150
4	2,400	160	12

Reinforce the connection between the grid method to multiply numbers up to 4 digits by **two digit** using long multiplication.

643
X 54
2572
1 1
32150
2 1

To multiply by 10, 100, 1000 children should use place value charts to show that the digit moves a column (s) to the left .The value of the digit is increasing by 10, 100 or 1000 times.

X 10

Multiplication: Year 6

Year 6 statutory requirements:
✓ Multiply multi-digit numbers up to 4 digits by a two-digit whole number using the formal written method of long multiplication.
✓Multiply one-digit numbers with up to two decimal places by whole numbers.

Build on learning from Year 5 multiplying numbers using compact short multiplication and long division.

643 x 8

643

x 8

5144

3 2

643

X 54

2572

1 1

32150

2 1

34722

1

Use compact short multiplication to multiply decimal number by whole number.

7.68

x 4

30.72