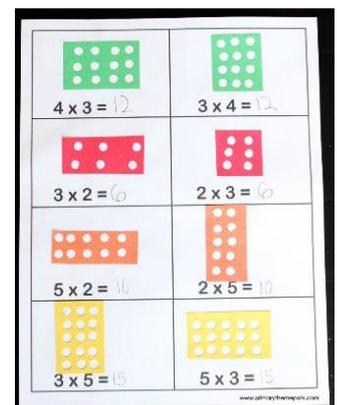
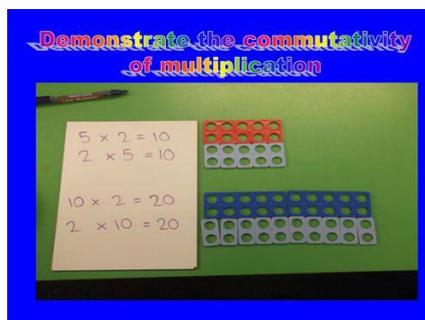
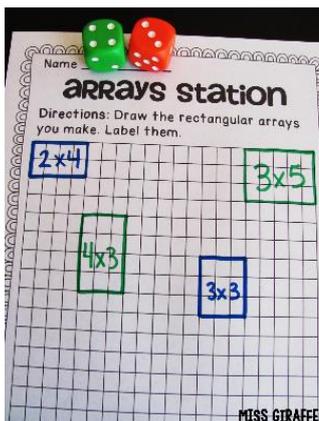


# Helping your child to develop their understanding of

X	0	1	2	3	4	5	6	7	8	9	10	11	12
0	0	0	0	0	0	0	0	0	0	0	0	0	0
1	0	1	2	3	4	5	6	7	8	9	10	11	12
2	0	2	4	6	8	10	12	14	16	18	20	22	24
3	0	3	6	9	12	15	18	21	24	27	30	33	36
4	0	4	8	12	16	20	24	28	32	36	40	44	48
5	0	5	10	15	20	25	30	35	40	45	50	55	60
6	0	6	12	18	24	30	36	42	48	54	60	66	72
7	0	7	14	21	28	35	42	49	56	63	70	77	84
8	0	8	16	24	32	40	48	56	64	72	80	88	96
9	0	9	18	27	36	45	54	63	72	81	90	99	108
10	0	10	20	30	40	50	60	70	80	90	100	110	120
11	0	11	22	33	44	55	66	77	88	99	110	121	132
12	0	12	24	36	48	60	72	84	96	108	120	132	144

# MULTIPLICATION

<b>1x</b> 1x0=0 1x1=1 1x2=2 1x3=3 1x4=4 1x5=5 1x6=6 1x7=7 1x8=8 1x9=9 1x10=10 1x11=11 1x12=12	<b>2x</b> 2x0=0 2x1=2 2x2=4 2x3=6 2x4=8 2x5=10 2x6=12 2x7=14 2x8=16 2x9=18 2x10=20 2x11=22 2x12=24	<b>3x</b> 3x0=0 3x1=3 3x2=6 3x3=9 3x4=12 3x5=15 3x6=18 3x7=21 3x8=24 3x9=27 3x10=30 3x11=33 3x12=36	<b>4x</b> 4x0=0 4x1=4 4x2=8 4x3=12 4x4=16 4x5=20 4x6=24 4x7=28 4x8=32 4x9=36 4x10=40 4x11=44 4x12=48
<b>5x</b> 5x0=0 5x1=5 5x2=10 5x3=15 5x4=20 5x5=25 5x6=30 5x7=35 5x8=40 5x9=45 5x10=50 5x11=55 5x12=60	<b>6x</b> 6x0=0 6x1=6 6x2=12 6x3=18 6x4=24 6x5=30 6x6=36 6x7=42 6x8=48 6x9=54 6x10=60 6x11=66 6x12=72	<b>7x</b> 7x0=0 7x1=7 7x2=14 7x3=21 7x4=28 7x5=35 7x6=42 7x7=49 7x8=56 7x9=63 7x10=70 7x11=77 7x12=84	<b>8x</b> 8x0=0 8x1=8 8x2=16 8x3=24 8x4=32 8x5=40 8x6=48 8x7=56 8x8=64 8x9=72 8x10=80 8x11=88 8x12=96
<b>9x</b> 9x0=0 9x1=9 9x2=18 9x3=27 9x4=36 9x5=45 9x6=54 9x7=63 9x8=72 9x9=81 9x10=90 9x11=99 9x12=108	<b>10x</b> 10x0=0 10x1=10 10x2=20 10x3=30 10x4=40 10x5=50 10x6=60 10x7=70 10x8=80 10x9=90 10x10=100 10x11=110 10x12=120	<b>11x</b> 11x0=0 11x1=11 11x2=22 11x3=33 11x4=44 11x5=55 11x6=66 11x7=77 11x8=88 11x9=99 11x10=110 11x11=121 11x12=132	<b>12x</b> 12x0=0 12x1=12 12x2=24 12x3=36 12x4=48 12x5=60 12x6=72 12x7=84 12x8=96 12x9=108 12x10=120 12x11=132 12x12=144



Traditional methods of teaching multiplication facts involved constant repetition/rote learning of the sums:

"2x2 is 4, 2x3 is 6, 2x4 is 8. . . "

This approach is still used in school and is a valuable way of helping children to develop a quick recall of their tables. However, this approach does not suit all learners, especially children who have difficulties with working memory and retaining information or pupils who are more visual learners.

Different approaches now used in school to teach multiplication facts:

### 1. Arrays

A visual approach to multiplication.

Children can make arrays using a range of symbols, pictures or objects.

For example:

-Dots

. . .

. . . . .

. . .

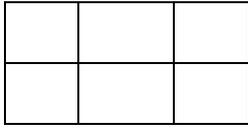
. . . . .

$3 \times 2 = 6$

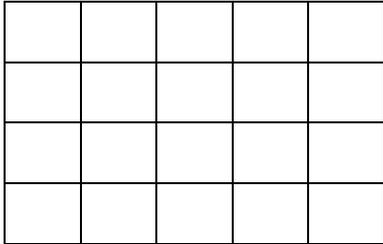
. . . . .

$5 \times 3 = 15$

## -Squares

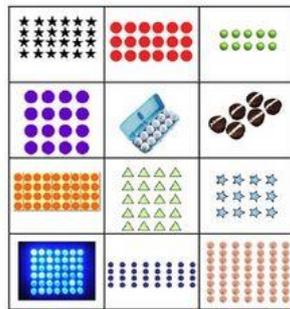
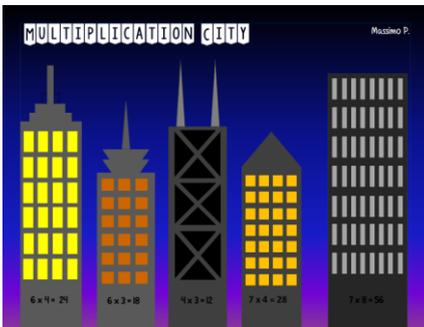


$$3 \times 2 = 6$$



$$5 \times 4 = 20$$

## -Pictures

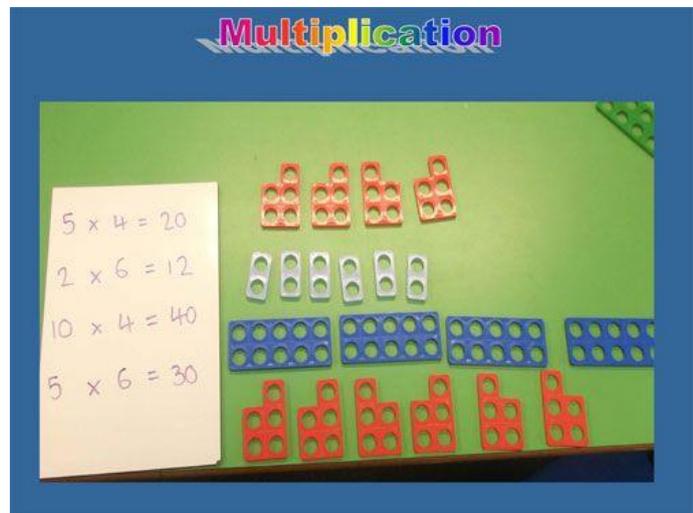
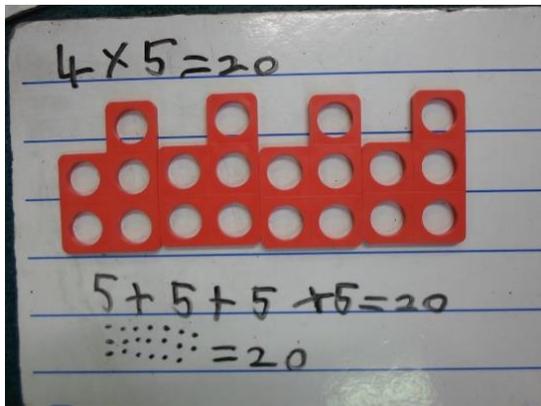


## -Objects



## 2. Numicon

Using Numicon as a visual approach.



## 3. Songs

In school we use a variety of songs to help teach multiplication. There are a wide range of multiplication songs and rhymes on YouTube.

<https://www.youtube.com/watch?v=zSRRAHvSQBo>

We also use songs on the BBC Supermovers website:

<https://www.bbc.co.uk/sport/av/supermovers/426751>

## 4. Games on iPad and computers

For example:

[www.topmarks.co.uk/maths-games](http://www.topmarks.co.uk/maths-games) *Times Tables Games for 7-11 years*

[www.multiplication.com/all-games](http://www.multiplication.com/all-games)

[www.primarygames.co.uk](http://www.primarygames.co.uk)

Apps for the iPad include-

*Multiplication Tables*

*Times Tables Mountain*

### 5. Multiplication as repeated addition

$$2 + 2 + 2 + 2 + 2 = 10$$

$$2 \times 5 = 10$$

$$3 + 3 + 3 = 9$$

$$3 \times 3 = 9$$

### 6. Hints and Tricks

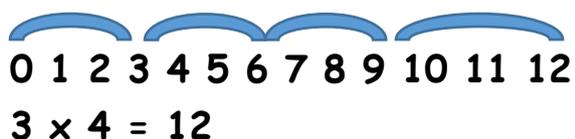
Facts	Strategy	Example
0	Any number times zero equals zero	$0 \times 8 = 0$
1	Any number times one equals the other number	$1 \times 3 = 3$
2	Just add the number to itself (Double the number)	$2 \times 4 = 8$ $4 + 4 = 8$
3	Double the other factor and then add it in one more time	$3 \times 7 =$ $7 + 7 = 14,$ $14 + 7 = 21$
4	Double it, then double the result	$4 \times 7 =$ $7 + 7 = 14,$ $14 + 14 = 28$
5	Count in 5's  Answer will always end in 0 or 5	$5 \times 3 =$ $5 + 5 + 5 = 15$
6	Multiply the number by 3 and then double the answer	$6 \times 4 =$ $3 \times 4 = 12$ $12 + 12 = 24$

	<p>If multiplied by an even number it will end in the same digit</p> <p>The number in the tens place will be half of the number in the units place</p>	$6 \times 4 = 24$ $6 \times 6 = 36$ $6 \times 4 = 24$ 2 is half of 4 $6 \times 6 = 36$ 3 is half of 6 $6 \times 8 = 48$ 4 is half of 8
7	<p>Multiples of 7</p> <p>If you know the multiples of 6 you just add on the number being multiplied again</p>	$7, 14, 21, 28, 35,$ $42, 49, 56, 63, 70$  $6 \times 4 = 24$ $24 + 4 = 28$ So $7 \times 4 = 28$
8	<p>Double, double and double again</p>	$8 \times 9$ $9 + 9 = 18$ $18 + 18 = 36$ $36 + 36 = 72$
9	<p>Use the hand trick!</p>	$4 \times 9$ Put down your fourth finger The first fingers before this are the tens - 3 tens The numbers after it are the units - 6 So $4 \times 9 = 36$
10	<p>Count in 10's</p> <p>Answer will always end in 0</p>	$10 \times 3 =$ $10 + 10 + 10 = 30$
11	<p>For 1-9 repeat the other factor for the product</p>	$11 \times 3 = 33$ $11 \times 5 = 55$ $11 \times 7 = 77$
12	<p>Use repeated addition</p>	$12 \times 3 =$ $12 + 12 + 12 = 36$

## 7. Using a multiplication square

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

## 8. Using a number line



## 9. Bar modelling approach

(See examples on the following pages)

Most importantly, multiplication is now approached in a fun, visual and practical way to engage every child.

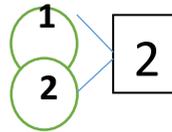
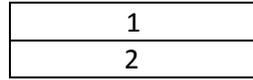


## Bar modelling approach

1)  $0 \times 2 = \underline{\quad}$

When we multiply any number by 0, we get 0.

2)  $1 \times 2 = \underline{\quad}$

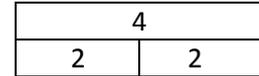
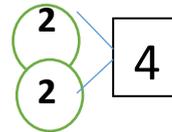
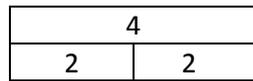


$1 \times 2 = 2$   
1 group of 2 = 2

$1 \times 2 = 2$

$2 \times 1 = 2$   
2 groups of 1 = 2  
 $1 + 1 = 2$

3)  $2 \times 2 = \underline{\quad}$

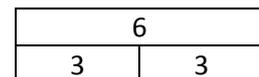
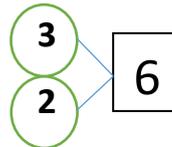
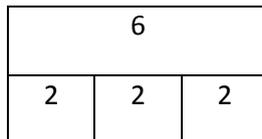


$2 \times 2 = 4$   
2 groups of 2 = 4

$2 \times 2 = 4$

$2 \times 2 = 4$   
2 groups of 2 = 4  
 $2 + 2 = 4$

4)  $3 \times 2 = \underline{\quad}$



$3 \times 2 = 6$   
3 groups of 2 = 6

$3 \times 2 = 6$

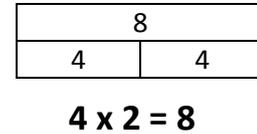
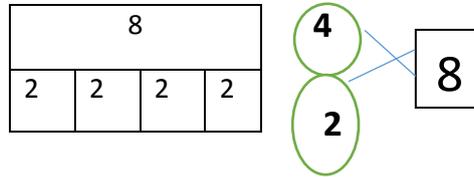
$2 \times 3 = 6$   
2 groups of 3 = 6  
 $3 + 3 = 6$





### Bar modelling approach

5)  $4 \times 2 = \underline{\quad}$

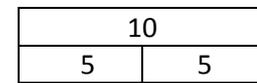
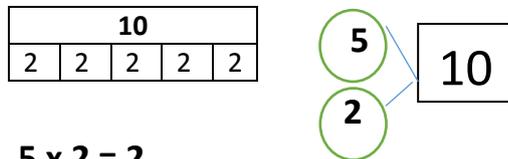


$2 \times 4 = 8$

$4 \text{ groups of } 2 = 8$      $4 \times 2 = 8$

$2 \text{ groups of } 4 = 8$   
 $4 + 4 = 8$

6)  $5 \times 2 = \underline{\quad}$

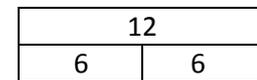
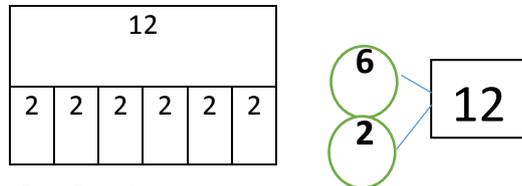


$5 \times 2 = 10$

$5 \text{ groups of } 2 = 10$      $1 \times 2 = 2$

$2 \times 5 = 10$   
 $2 \text{ groups of } 5 = 10$   
 $5 + 5 = 10$

7)  $6 \times 2 = \underline{\quad}$

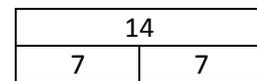
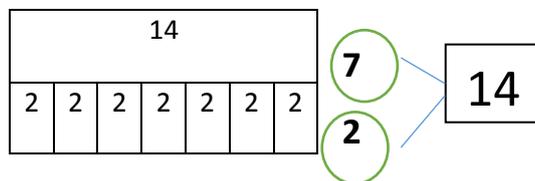


$6 \times 2 = 12$

$12 \text{ groups of } 2 = 12$      $6 \times 2 = 12$

$2 \times 6 = 12$   
 $2 \text{ groups of } 6 = 12$   
 $6 + 6 = 12$

8)  $7 \times 2 = \underline{\quad}$



$7 \times 2 = 14$

$7 \text{ groups of } 2 = 14$      $7 \times 2 = 14$

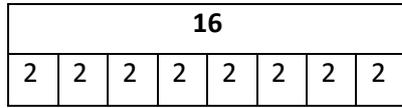
$2 \times 7 = 14$   
 $2 \text{ groups of } 7 = 14$   
 $7 + 7 = 14$



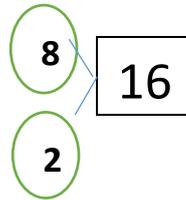


### Bar modelling approach

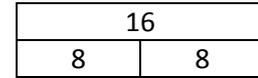
9)  $8 \times 2 = \underline{\quad}$



$8 \times 2 = 16$   
3 groups of 2 = 6

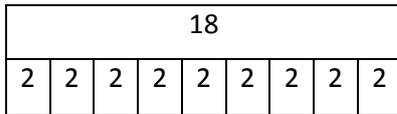


$8 \times 2 = 16$

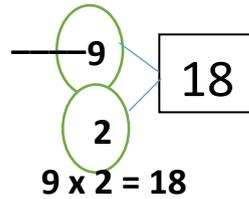


$2 \times 8 = 16$   
2 groups of 8 = 16  
 $8 + 8 = 16$

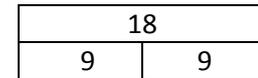
10)  $9 \times 2 = \underline{\quad}$



$9 \times 2 = 18$   
9 groups of 2 = 6

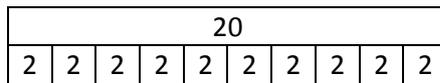


$9 \times 2 = 18$

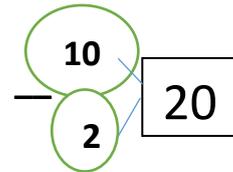


$2 \times 9 = 18$   
2 groups of 9 = 18  
 $9 + 9 = 18$

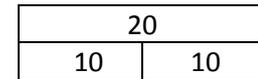
11)  $10 \times 2 = \underline{\quad}$



$10 \times 2 = 20$   
10 groups of 2 = 6

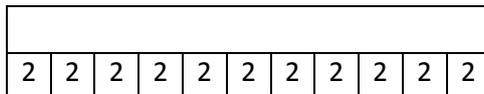


$9 \times 2 = 18$

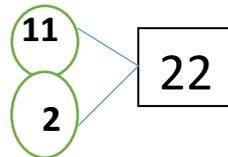


$2 \times 10 = 20$   
2 groups of 10 = 20  
 $10 + 10 = 20$

12)  $11 \times 2 = \underline{\quad}$



$11 \times 2 = 22$   
11 groups of 2 = 22

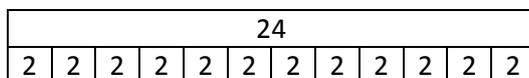


$11 \times 2 = 22$

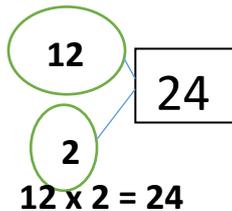


$2 \times 11 = 22$   
2 groups of 11 = 20  
 $10 + 10 = 20$

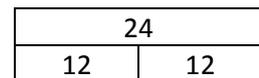
13)  $12 \times 2 = \underline{\quad}$



$12 = 24$   
12 groups of 2 = 24



$12 \times 2 = 24$



2 x  
 $2 \times 12 = 24$   
 $12 + 12 = 24$

