

Multiplication

Key Objective

Show an interest in number problems.

Verbally count in steps

1

Singing songs

Two, four, six, eight,
who do we appreciate?

Nursery Rhymes

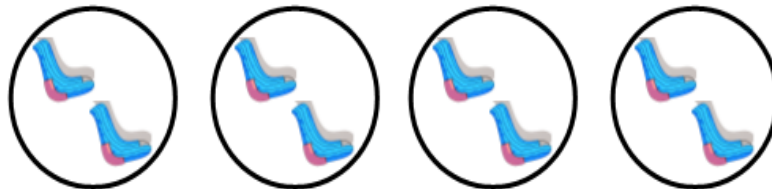


One, two, buckle my shoe,
three, four open the door,
five, six, pick up sticks,
seven, eight, lay them straight.

Practically count in groups during play

2

Without number sentence



Key Vocabulary

groups of, lots of, count.

Nursery

Multiplication

Key Objective

Solve problems involving doubling.

Practically count in groups and use pictorial representations

$$2 \times 4 = 8$$

1

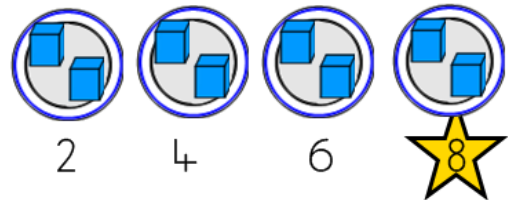
Counting in steps

" 2, 4, 6, 8 "



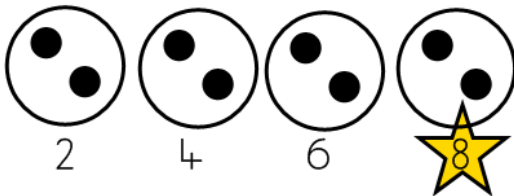
2

Practically counting in groups



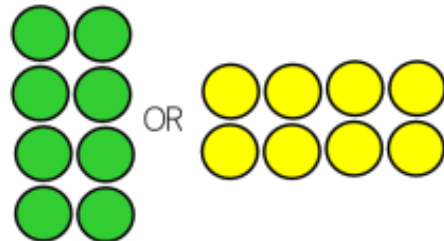
3

Drawing using symbols



4

Drawing using arrays



Key Vocabulary

groups of, lots of, times, altogether, count.

Reception

Multiplication

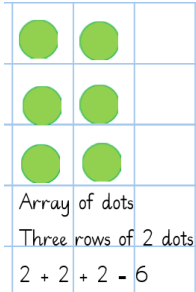
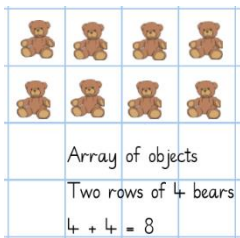
Key Objective

Solve one-step multiplication problems using concrete objects, pictorial representations and arrays with the support of the teacher.

Multiply using arrays

1

Arrays



Multiply using repeated addition

2

Repeated addition

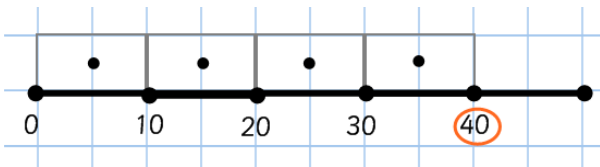
$$10 \times 3 = 30$$

$$10 + 10 + 10$$

Multiply using a number line

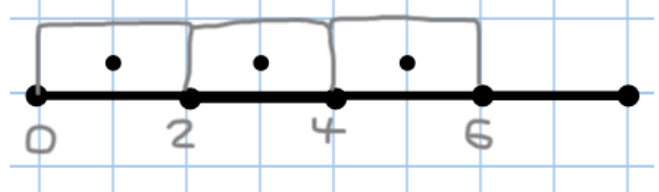
3

Guided number line: $10 \times 4 = 40$



4

Draw own number line: $2 \times 3 = 6$



Key Vocabulary

groups of, lots of, times, array, altogether, multiply, count.

Year 1

Multiplication

Key Objective

Show that multiplication of two numbers can be done in any order (commutative) and solve problems involving multiplication using mental methods and multiplication facts.

Multiply mentally and use commutativity

1

5×3 and $3 \times 5 = 15$

Mentally: $\times 2$ $\times 5$ $\times 10$

2, 4, 6...

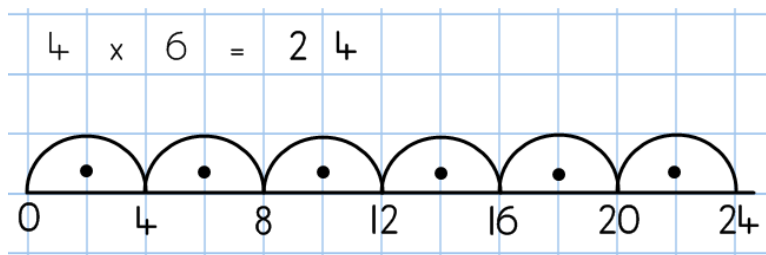
5, 10, 15...

10, 20, 30...

Multiply using a number line

2

Number line: $\times 3$ $\times 4$



Partitioning

3

10×2

$15 \times 2 = 30$

$10 \times 2 = 20$

$5 \times 2 = 10$

Key Vocabulary

groups of, lots of, times, array, altogether, multiply, count, multiplied by, repeated addition, column, row, commutative, sets of, equal groups, times as big as, once, twice, three times.

Year 2

Multiplication

Key Objective

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.

Expanded column multiplication

1

TO x O with brackets

| | | | | | | |
|---|---|---|---|----------|--|--|
| | | 3 | 4 | | | |
| x | | | 3 | | | |
| | | 1 | 2 | (4 x 3) | | |
| | | 9 | 0 | (30 x 3) | | |
| | 1 | 0 | 2 | | | |
| | | | | | | |

2

TO x O

| | | | |
|---|---|---|---|
| | | 3 | 4 |
| x | | | 3 |
| | | 1 | 2 |
| | | 9 | 0 |
| | 1 | 0 | 2 |
| | | | |

Cross out once used!

Key Vocabulary

groups of, lots of, times, array, altogether, multiply, count, multiplied by, repeated addition, column, row, commutative, sets of, equal groups, times as big as, once, twice, three times, partition, grid method, multiple, product, tens, ones, value.

Year 3

Multiplication

Key Objective

Multiply two-digit and three-digit numbers by a one-digit number using formal written layout and to become fluent in the formal written method of short multiplication.

Compact column multiplication

TO x O

HTO x O

1 No carrying

| | | |
|-------|---|---|
| | 2 | 3 |
| x | | 3 |
| <hr/> | | |
| | 6 | 9 |
| <hr/> | | |

2 Carrying

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

3

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

~~1~~
Cross out once used!

Key Vocabulary

groups of, lots of, times, array, altogether, multiply, count, multiplied by, repeated addition, column, row, commutative, sets of, equal groups, times as big as, once, twice, three times, partition, grid method, multiple, product, tens, ones, value, inverse.

Year 4

Multiplication

Key Objective

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.

Short column multiplication

1

THHTO x O

| | | | | |
|-------|---|---|---|---|
| | 2 | 5 | 6 | 4 |
| x | | | | 3 |
| <hr/> | | | | |
| | 7 | 6 | 9 | 2 |
| | + | + | + | |

| | |
|---|--|
| | |
| + | |

Cross out once used!

Long column multiplication

2

TO x TO

| | | | | |
|-------|---|---|---|---|
| | | 6 | 4 | |
| x | 2 | 3 | | |
| <hr/> | | | | |
| | 1 | 9 | 2 | |
| + | 1 | 2 | 8 | 0 |
| <hr/> | | | | |
| | 1 | 4 | 7 | 2 |
| | + | | | |

3

HTO x TO

| | | | | | |
|-------|---|---|---|---|---|
| | | 5 | 6 | 4 | |
| x | | 2 | 3 | | |
| <hr/> | | | | | |
| | 1 | 6 | 9 | 2 | |
| + | 1 | 1 | 2 | 8 | 0 |
| <hr/> | | | | | |
| | 1 | 2 | 9 | 7 | 2 |
| | + | | | | |

4

THHTO x TO

| | | | | | |
|-------|---|---|---|---|---|
| | | 2 | 5 | 6 | 4 |
| x | | | 2 | 3 | |
| <hr/> | | | | | |
| | | 7 | 6 | 9 | 2 |
| + | 5 | 1 | 2 | 8 | 0 |
| <hr/> | | | | | |
| | 5 | 8 | 9 | 7 | 2 |
| | + | | | | |

Key Vocabulary

groups of, lots of, times, array, altogether, multiply, count, multiplied by, repeated addition, column, row, commutative, sets of, equal groups, times as big as, once, twice, three times, partition, grid method, multiple, product, tens, ones, value, inverse, square, factor, integer, decimal, short / long multiplication, carry, tenths, hundredths.

Year 5

Multiplication

Key Objective

Multiply multi-digit numbers up to 4 digits by a two-digit whole number using the formal written method of long multiplication.

Short column multiplication

1

Multiplying an integer by a decimal

$$\begin{array}{r} \text{£}13.85 \times 5 \\ \hline 69.25 \\ \hline \end{array}$$

Take decimal points out

Multiply

Count total decimal places from original numbers

Add decimal point back in

Long column multiplication

2

THHTO x TO

$$\begin{array}{r} 2564 \\ \times \quad 23 \\ \hline 7692 \\ 51280 \\ \hline 58972 \end{array}$$

Cross out once used!

3

Decimal x decimal, e.g. 2.49×4.3

$$\begin{array}{r} 249 \\ \times 43 \\ \hline 747 \\ 9960 \\ \hline 10707 \end{array}$$

Take decimal points out

Multiply

Count total decimal places from original numbers

Add decimal point back in

$$2.49 \times 4.3 \text{ (3d.p.)}$$

$$10.707$$

Key Vocabulary

groups of, lots of, times, array, altogether, multiply, count, multiplied by, repeated addition, column, row, commutative, sets of, equal groups, times as big as, once, twice, three times, partition, grid method, multiple, product, tens, ones, value, inverse, square, factor, integer, decimal, short / long multiplication, carry, tenths, hundredths.

Year 6