# Multiplication and division

Children are expected to:

♦ **Count in steps of 2, 3 and 5 from 0, and in tens from any number, forward and backward.**

Following on from the number objectives covered in Year 1, children continue to practise counting in steps of 2, 5 and 10 from 0. They now extend this knowledge to counting backwards in these steps and counting in tens from any number (not just from 0).

The use of concrete resources , such as bead strings, cusinere rods, numicon and counting sticks or hoops, can support the children with this objective.

0 ⟹ 5 ⟹ 10 ⟹ 15 ⟹ 20 ⟹ 25

15   20   25   30   35   40
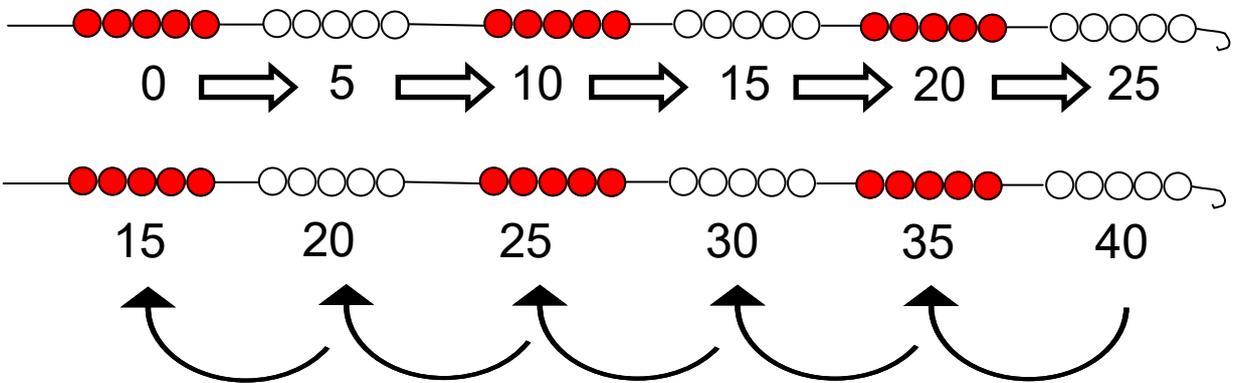
The use of a 100 square can support children's understanding of counting in tens from any number.

1	2	3	4	5	6	7	8	9	10
11	12	13	14	15	16	17	18	19	20
21	22	23	24	25	26	27	28	29	30
31	32	33	34	35	36	37	38	39	40
41	42	43	44	45	46	47	48	49	50
51	52	53	54	55	56	57	58	59	60
61	62	63	64	65	66	67	68	69	70
71	72	73	74	75	76	77	78	79	80
81	82	83	84	85	86	87	88	89	90
91	92	93	94	95	96	97	98	99	100

Furthermore, children are now expected to count up in threes from 0.

+3 +3 +3 +3 +3 +3 +3

0   1 2 3 4 5 6 7 8 9 10 11 12 13 14 15 16 17 18 19 20 21 22 23

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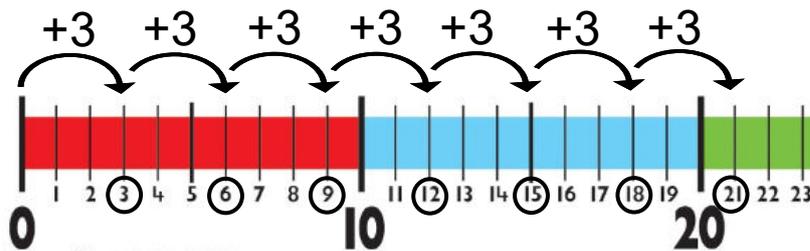
Multiplication and division

Linking counting in multiples of 2, 5 and 10 to other aspects of maths and real life can support children's understanding and enable them to make connections and spot patterns.

A clock face can help support counting in 5's, whilst money (2p, 5p, 10p) can be a great way to practise counting in multiples.

Knowledge of the 2 times table will enable children to count in 20's as well.

20   **40**   **60**   **80**

♦   **Recall and use multiplication and division facts for the 2, 5 and 10 multiplication tables, including recognising odd and even numbers.**

The children should now be able to recall, from memory, multiplication facts for the 2, 5 and 10 times tables. They should be able to recite the multiplication tables in order, as well as answer questions from these times table when they are presented out of order or involve missing numbers e.g.

7 x 2 = ☐   ☐ **x 2 = 14**

7 x ☐ **= 14**   ☐ **x** ◯ **= 14**

Children should also start to recognise patterns in these multiplication tables e.g.

All number in the 2 x table are even.
All numbers in the 5 x table end with 0 or 5.
All numbers in the 10 x table end with 0.

Which of these numbers are in the 5 times table? How do you know?
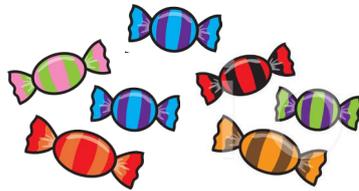
| 72 | 45 | 53 |
| 80 | 69 | 95 |

Multiplication and division

5 times table	10 times table
1 × 5 = 5	1 × 10 = 10
2 × 5 = 10	2 × 10 = 20
3 × 5 = 15	3 × 10 = 30
4 × 5 = 20	4 × 10 = 40
5 × 5 = 25	5 × 10 = 50
6 × 5 = 30	6 × 10 = 60
7 × 5 = 35	7 × 10 = 70
8 × 5 = 40	8 × 10 = 80
9 × 5 = 45	9 × 10 = 90
10 × 5 = 50	10 × 10 = 100
11 × 5 = 55	11 × 10 = 110
12 × 5 = 60	12 × 10 = 120

The 5 times table is half the 10 times table. So to find 6 x 5, I could work out 6 x 10 and then halve it!

An odd number can't be shared equally between two.

The use of a phone number keypad can also demonstrate patterns of numbers in the times tables.

Multiplication and division

♦ **Calculate mathematical statements for multiplication and division within the multiplication tables and write them using the multiplication (x), division (÷) and equals (=) signs.**
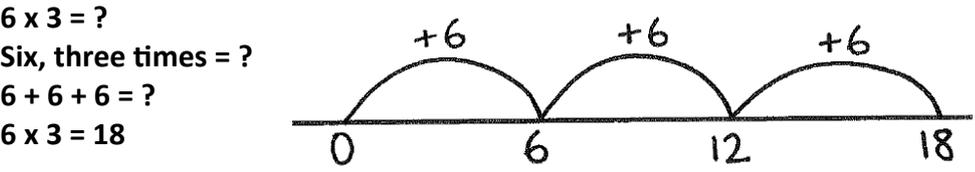
Multiplication
Children should continue to use grouping, arrays and number lines to calculate unknown multiplications, developing their understanding of multiplication as repeated addition.

Children should read multiplication statements in the following way:
3 x 4 = the number 3, four times as opposed to 3 groups of 4.

6 x 6 = ?
six, six times = ?
6 + 6 + 6 + 6 + 6 + 6 = ?
6 x 6 = 36

4 x 6 =
Four, six times = ?
4 + 4 + 4 + 4 + 4 + 4 =
4 x 6 = 24
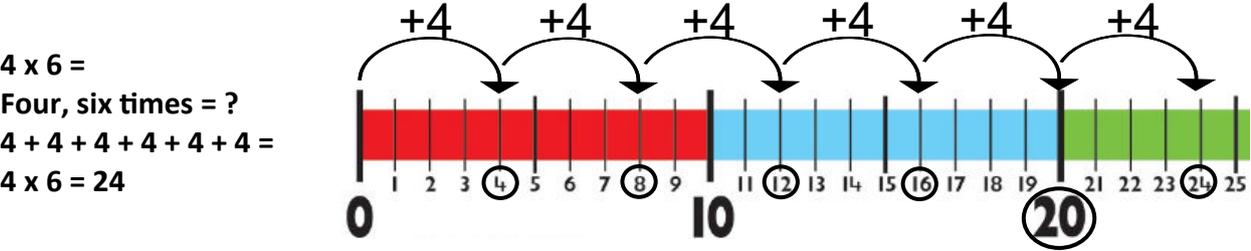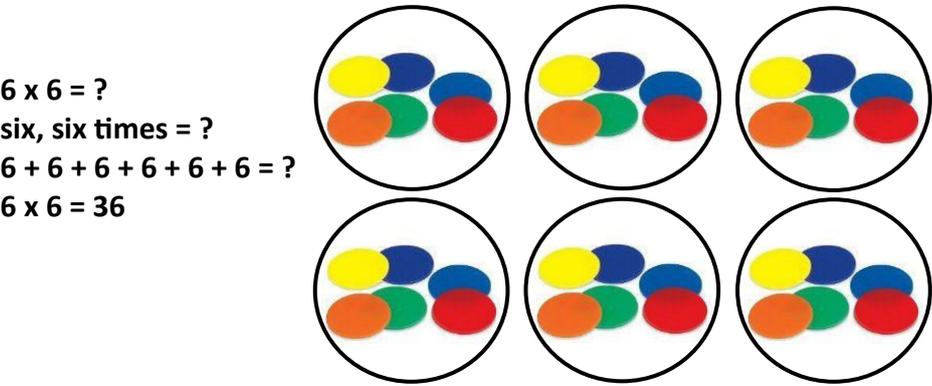
Some children may be able to use a blank number line to record their mental processes and therefore move from a concrete to a pictorial method.

6 x 3 = ?
**Six, three times = ?**
6 + 6 + 6 = ?
6 x 3 = 18

Multiplication and division

Children also consolidate the connection between multiplying by 2 and doubling.

As well as knowing doubles to 10 + 10, they begin to use known facts to double larger 2 digits numbers by partitioning.
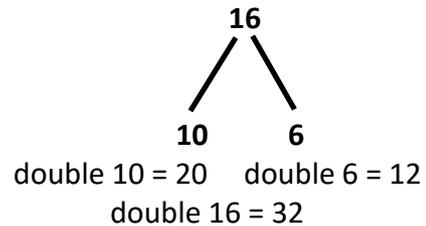
E.g.

Double 16 = double 10 + double 6

Children may use informal jottings to present their working out using this strategy
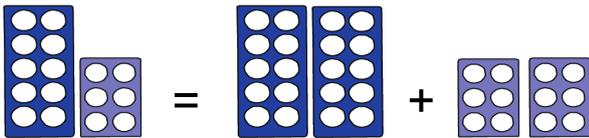
double 10 = 20 and double 6 = 12
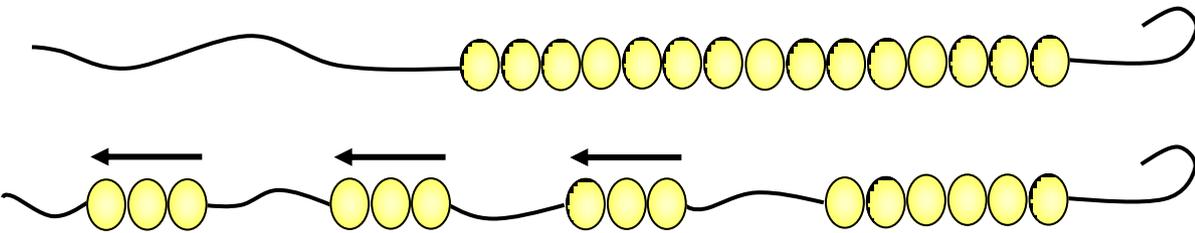
20 + 12 = 32

double 16 = 32

double 10 = 20   double 6 = 12

double 16 = 32

Division

The principles of division continue to be taught through grouping and sharing. The children also move onto looking at division through repeated subtraction.

Grouping - when grouping, you count the number of groups you have made.

For example: $15 ÷ 3 = 5$ can be viewed as "How many groups of 3 are there in 15?"

Concrete objects such as bead strings and counters can be used to support this concept.

Once secure, children can move on to less concrete strategies such as counting on their fingers or using a blank number line.
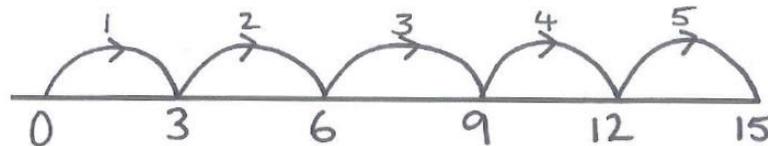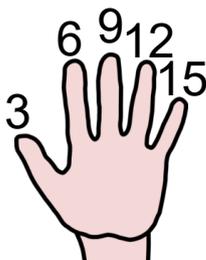
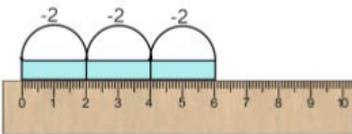These strategies enable children to consolidate the relationship between multiplication and division.

Multiplication and division

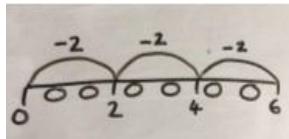Division as grouping enables the children to make the connection with division as repeated subtraction.

For example:

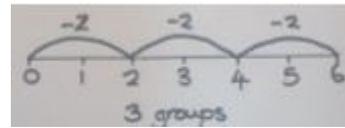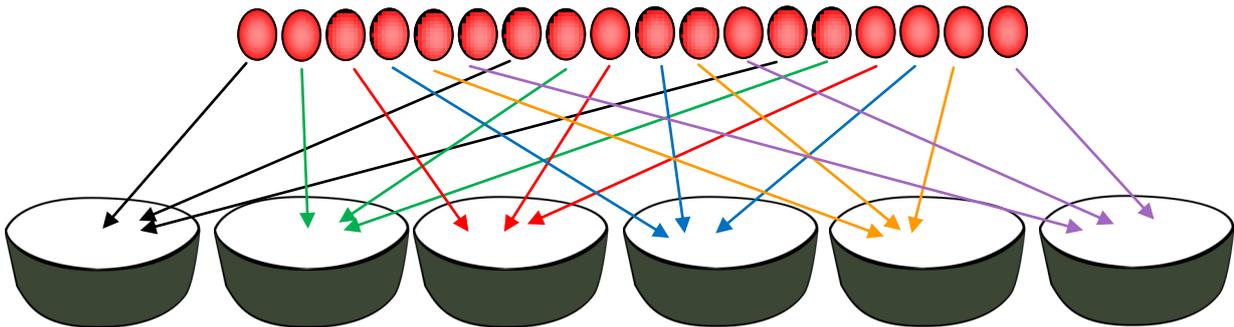$6 \div 2 = 3$ can be read as how many groups of 2 can I take away from 6?

concrete	pictorial	abstract

**Sharing** – when sharing, we count the number of objects in each group.

For example: $18 \div 6 = ?$

18 shared between 6 groups makes 3 in each group.

♦ **Show that multiplication of two numbers can be done in any order (commutative) and division of one number by another cannot.**

By creating and exploring arrays, children will begin to recognise the inverse relationship between multiplication and division.
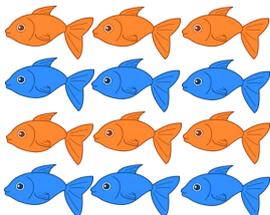
3 x 4 = 12
4 x 3 = 12
12 ÷ 4 = 3
12 ÷ 3 = 4

Eventually children should be able to answer questions like:
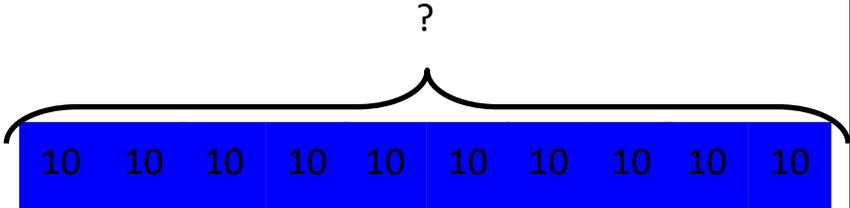**"If 12 x 2 is 24, what is 24 ÷ 2?"**

Multiplication and division

♦ **Solve problems involving multiplication and division, using materials, arrays, repeated addition, mental methods, and multiplication and division facts, including problems in contexts.**
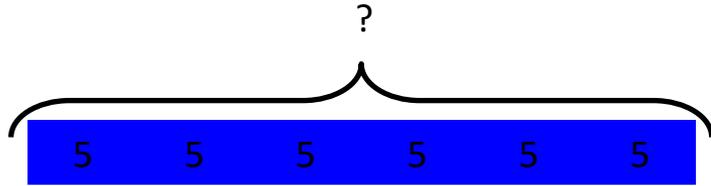
Sita puts **10** balls in each bag.

?

| 10 | 10 | 10 | 10 | 10 | 10 | 10 | 10 | 10 | 10 |

10 x 10 = ?

How many balls are in the bags **altogether**?

[   ] balls

A classroom has **6** tables.
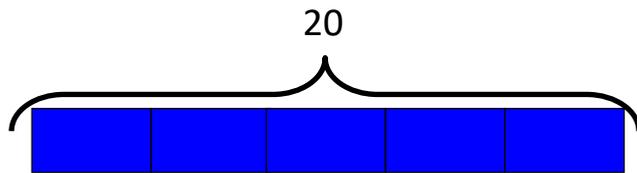
Each table has **5** children sitting at it.

?

| 5 | 5 | 5 | 5 | 5 | 5 |

5 x 6 = ?

A shopkeeper has **20** fish and **5** fish bowls.

He puts the same number of fish in each bowl.

How many fish go in each bowl?

20

20 ÷ 5 = ?

[   ] fish

Write the **same** number in both boxes to make the sum correct.

26

[   ] + [   ] = 26
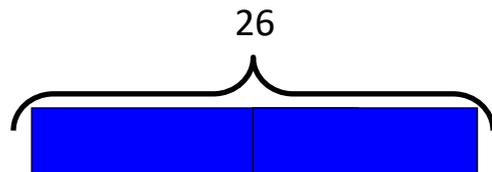
26 ÷ 2 = ?   **Half of 26 = ?**

Multiplication and division

Key vocabulary:
multiple, multiplication array, multiplication tables/facts, groups of, lots of, times, columns, rows, group in pairs, 3s … 10s etc, equal groups of, divide, ÷, divided by, divided into, shared into, remainder.