

MULTIPLICATION STRATEGIES

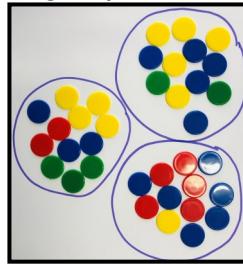
Literacy Numeracy Health & Wellbeing

To demonstrate a depth of understanding of multiplication children should be able to progress through and confidently use a variety of strategies to solve problems and show working, and not be over reliant on one.

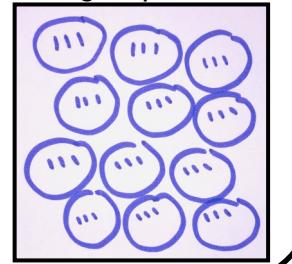
1. Groups Of

Use real items (sweets, counters, toys) and drawings as representations.

3 groups of 12



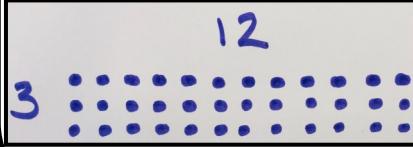
12 groups of 3



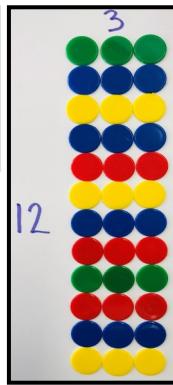
2. Arrays

Arrays are groups arranged in rows and columns in the shape of a rectangle. Always row x column.

3 groups of 12 or 3×12



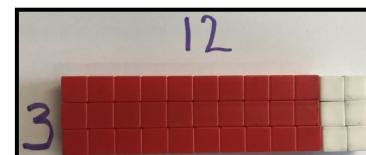
12 groups of 3 or 12×3



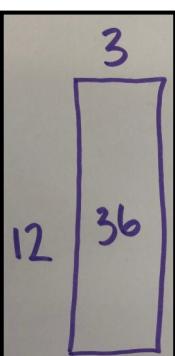
3. Area Model

Breadth (row from array) and length (column from array) multiply to find the area of the rectangle

3×12

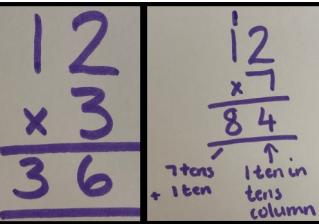


12×3



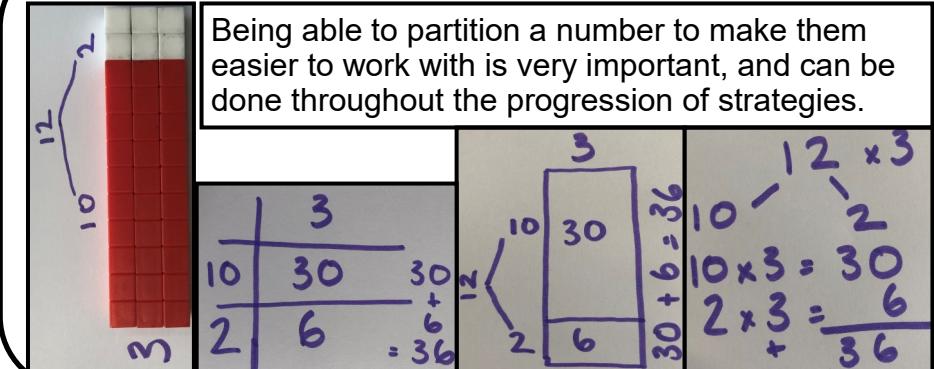
6. Formal Written

A true understanding of multiplication is demonstrated by confidently using a wide range of strategies. The formal written sum should only be used when confidence in the use of others has been achieved.



5. Partition

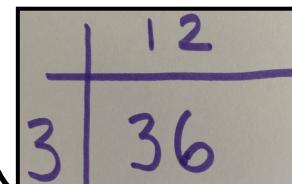
Being able to partition a number to make them easier to work with is very important, and can be done throughout the progression of strategies.



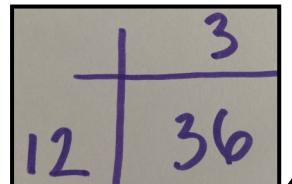
4. Grid

A progression from the Area model, and an informal way of writing or recording multiplication if a picture isn't needed.

3×12



12×3



Skip Counting / Repeated Addition

Count or add in jumps of multiple. Can be done orally or written.



Times Tables

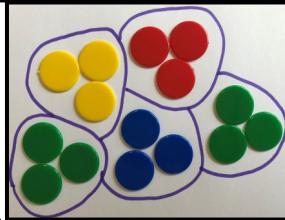
A good indicator for how well a child remembers multiplication facts, but not always how well they know how to multiply. Ask how they know the answer.

DIVISION STRATEGIES

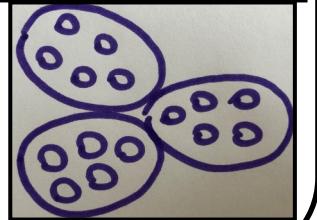
To demonstrate a depth of understanding of division children should be able to progress through and confidently use a variety of strategies to solve problems and show working, and not be over reliant on one.

1. Grouping

Use real items (sweets, counters, toys) and drawings as representations. Children should know the difference between **groups** and **groups of**.



15 into 5 groups

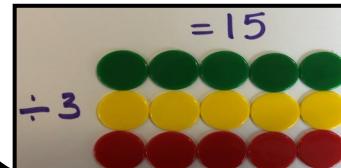


12 into groups of 5

2. Arrays

Arrays are groups arranged in rows and columns in the shape of a rectangle or square. Row = dividing by Column = Answer

12 into 5 rows $12 \div 3 =$



= 15

$\div 3$



12 into rows of 3

$12 \div ? = 3$

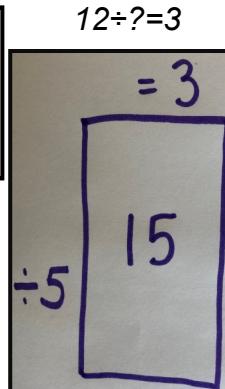
3. Area Model

Rows (breadth) and total amount (area) divide to find the answer of the rectangle or square.

$12 \div 3$

= 5

$\div 3$



$12 \div ? = 3$

= 3

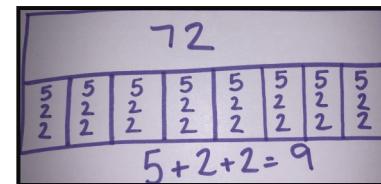
$\div 5$

15

4. Bar Model

Dividing the whole amount into equal parts. Use things to physically share or their knowledge of addition/multiplication amongst the parts to solve.

$72 \div 8$



$5+2+2=9$

6. Formal Written

A true understanding of division is demonstrated by confidently using a wide range of strategies. The formal written sum should only be used when confidence in the use of others has been achieved.

5. Partitioning in different ways

Being able to partition or change a number to make them easier to work with is very important. It can be done throughout the progression of strategies and when working with different numbers.

Multiplying Up $192 \div 8$

Multiply up to a number within number dividing, continue until you reach the total amount then add the total times multiplied.

$$\begin{aligned} 8 \times 10 &= 80 \\ 8 \times 10 &= 80 + \\ 8 \times 4 &= 32 + \\ 192 & \\ 10 + 10 + 4 &= 24 \\ 192 \div 8 &= 24 \end{aligned}$$

Skip Counting / Repeated Addition

Count/subtract in jumps of multiple. Can be done orally or written.

$72 \div 9 = 8$

$$\begin{aligned} 72 - 9 - 9 - 9 - 9 \\ - 9 - 9 - 9 - 9 = 0 \end{aligned}$$

$$\begin{aligned} 0 + 9 + 9 + 9 + 9 \\ + 9 + 9 + 9 + 9 = 72 \end{aligned}$$

Times Tables

$$\begin{aligned} 9 \times 8 &= 72 \\ \text{so } 72 \div 9 &= 8 \end{aligned}$$