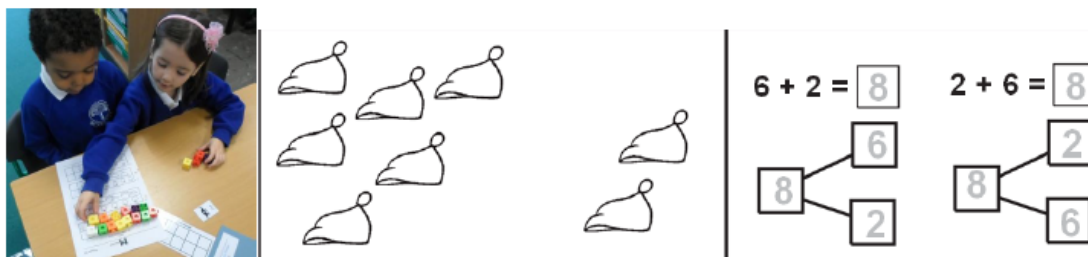


KS1 Parents Calculation Workshop

Addition

How written methods are developed.

Concrete \longrightarrow Pictorial \longrightarrow Abstract



In Year 1 the children will use lots of practical equipment and number lines. As they become more confident with numbers over 20, they will use a 100 square to help them calculate.

In year 2, the children continue to use practical equipment, if they need it, and continue to use the 100 square.

The children learn how to add using a method called partitioning.

$$\begin{array}{cccc} & & 35 + 46 = & \\ & / & | & | & \backslash \\ 30 & & 5 & 40 & 6 \end{array}$$

$$30 + 40 = 70$$

$$5 + 6 = 11$$

$$70 + 11 = 81$$

The children use a 100 square to help them if they need it.

Subtraction

In Early Years we use counters, cubes and physical objects to begin teaching subtraction. We then progress to pictorial methods where the children begin recording this by themselves.

In Year 1 we continue to use the process of concrete to pictorial to abstract. Children will use cubes to work out subtractions using the language of one less or take away. Children will use a number line, cubes or their fingers to work out a written calculation.

In Year 2 Children will use cubes for numbers up to 20. Beyond 20 they will use a number line or 100 square to support the calculation. The smaller number is partitioned into tens and ones for subtracting when subtracting 2 digit numbers. Children will also draw their own blank number line to subtract in tens and ones.

How we teach the children.

Once they have used practical equipment and a number line they then use a 100 square. We teach them partitioning which is slightly different from the method used to add.

e.g-

$$\begin{array}{r} 64-38= \\ \diagdown \quad \diagup \\ 30 \quad 8 \end{array}$$

$$64-30= 34$$

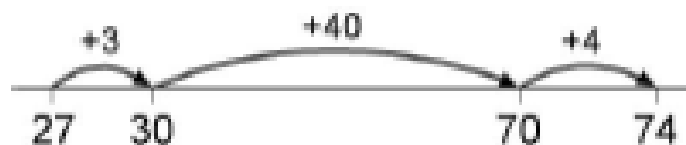
$$34-8= 26$$

They can use this method when using hundreds, tens and units.

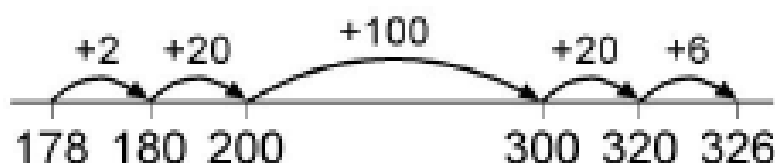
They are also introduced to blank number lines.

The children are taught the concept of subtraction as the difference between two numbers. This difference can then be calculated by counting up from the smaller number to the bigger one:

$$74 - 27 = 47$$



$$326 - 178$$



The children are taught that addition is the opposite of subtraction and subtraction is the opposite of addition.

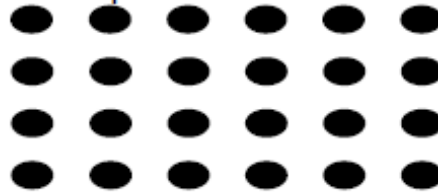
Multiplication

Year 1: Children double and group numbers leading to repeated addition

Repeated addition
 $4 \times 3 = 12$
 $4 + 4 + 4 = 12$
or
 $3 + 3 + 3 + 3 = 12$

This is also shown as an array

Arrays – diagrams can be used to solve multiplication problems.
 $6 \times 4 = 24$



Year 2

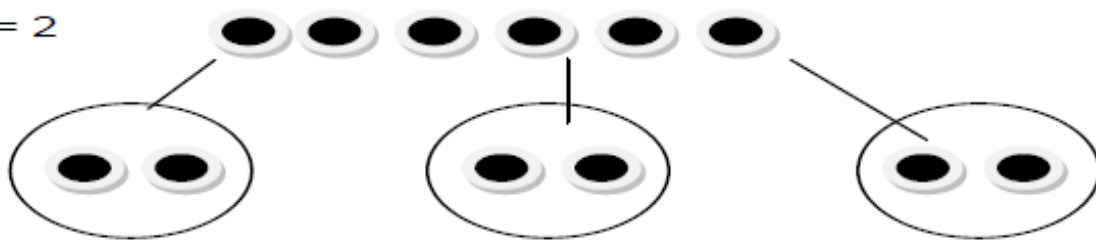
Children use arrays (as seen above) to solve written multiplication equations

$$2 \times 4 =$$

Division

Early Years: Children learn how to divide by sharing an amount between groups. We would do this by using counters or cubes however; we do not always record the written calculation.

$$6 \div 3 = 2$$

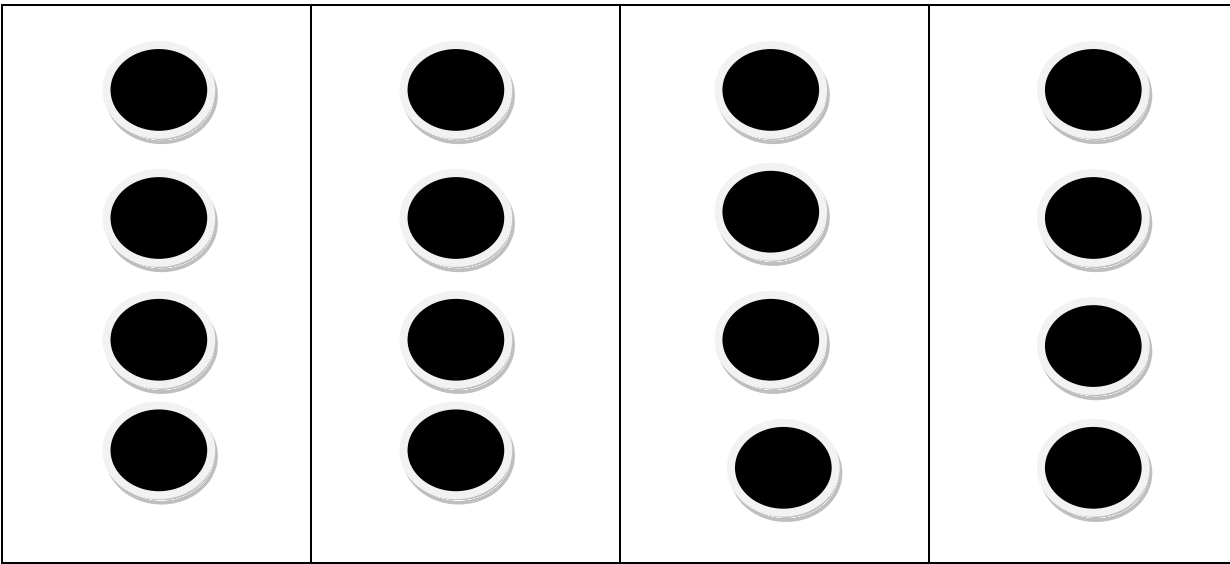


Year One: Children share into groups or amounts (as shown above) and progress to recording it as a written calculation.

E.g. $10 \div 2 =$

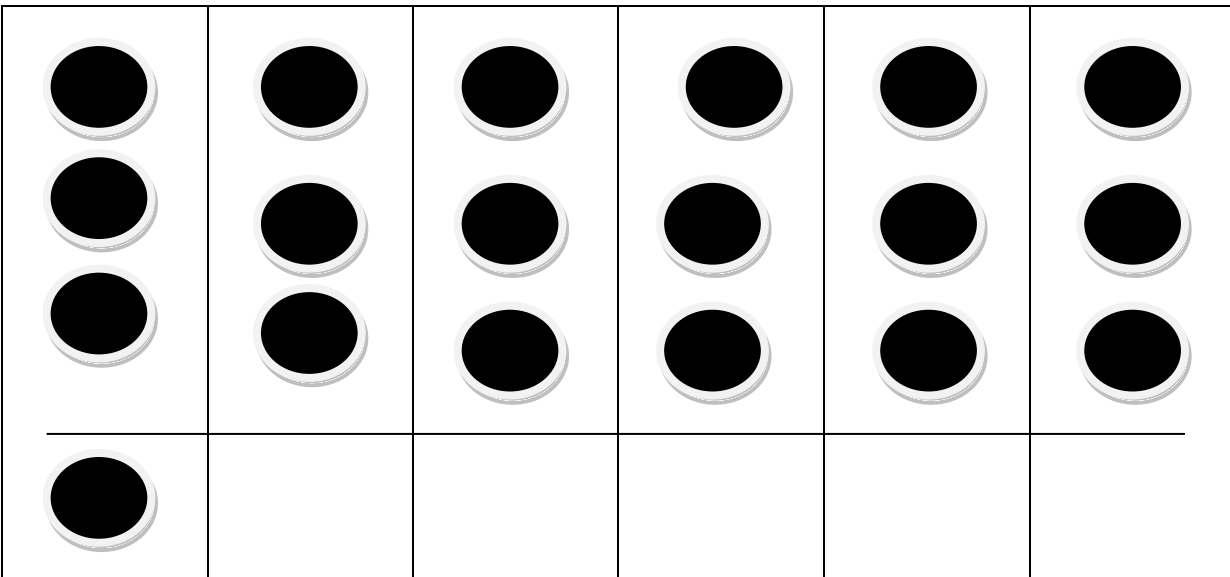
Year Two: Children share into groups or amounts and progress to recording it as a written calculation.

$$16 \div 4 = 4$$



This can then be developed to find remainders

$$19 \div 6 = 3 \text{ r}1$$



The children are taught that multiplication is the opposite of division and division is the opposite of multiplication.