
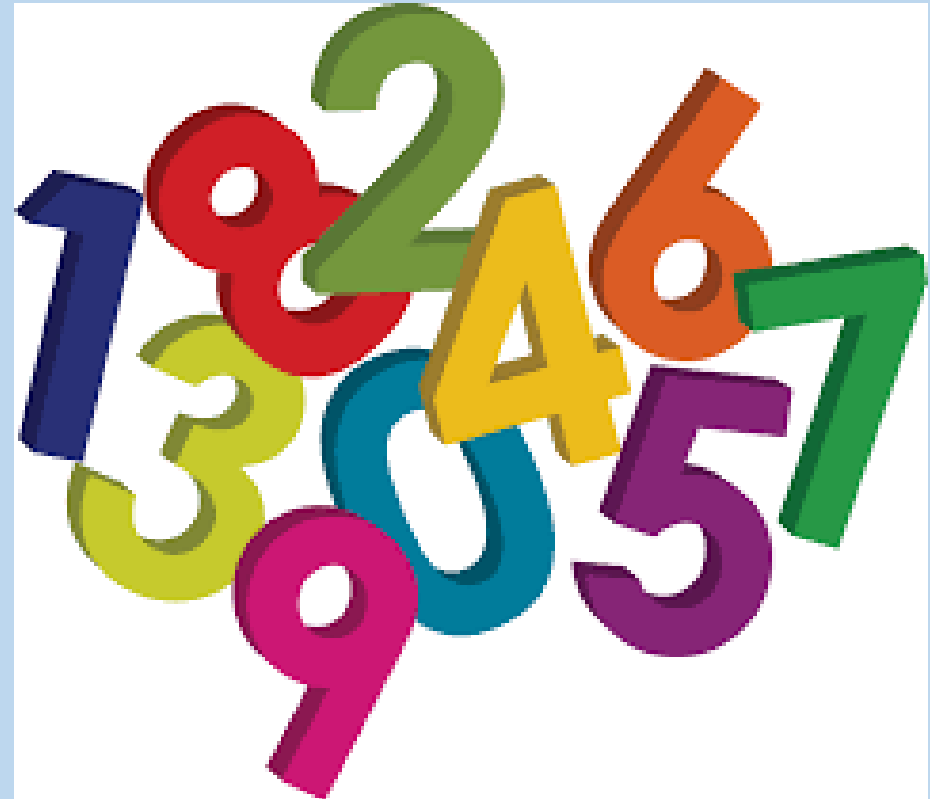


Parent Math Workshop

THAT AWKWARD MOMENT
WHEN YOUR KID REALIZES



YOU CANT HELP HIM WITH
MATH HOMEWORK ANYMORE



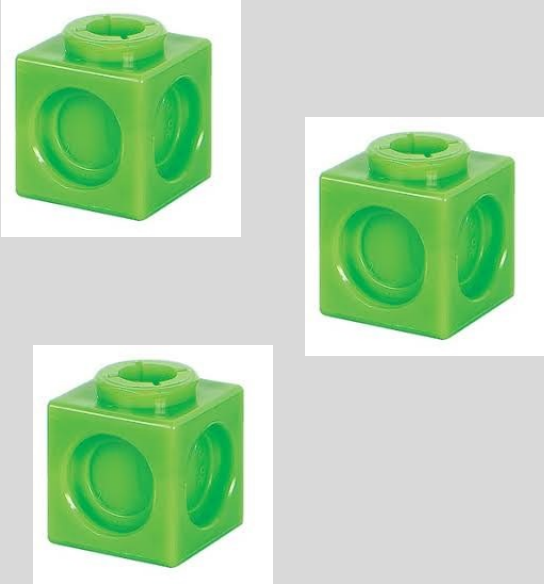
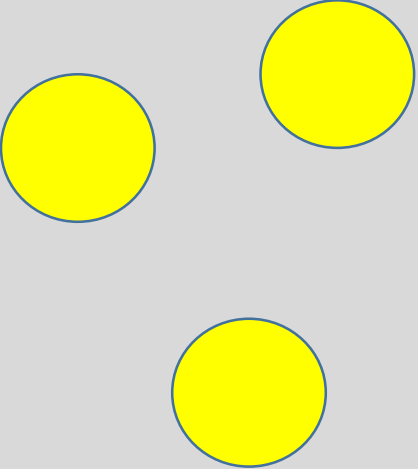
Key aims of the current maths curriculum

- **Fluent recall of mental maths facts** e.g. times tables, number bonds.
- To **reason** mathematically – children need to be able to **explain** the mathematical concepts with number sense; they must explain **how** and **why** they got the answer and why they are correct.
- **Problem solving** – applying their skills to real – life contexts.
- **Develop** use pictorial representation to help visualise problems.

Woodlands Federation Written Calculation Policy

	Year 1	Year 2	Year 3	Year 4	Year 5	Year 6
Addition	<p>Combining two parts to make a whole: part whole model.</p> <p>Starting at the bigger number and counting on.</p> <p>Regrouping to make 10.</p>	<p>Adding three single digits.</p> <p>Column method – no regrouping.</p>	<p>Column method- regrouping. (up to 3 digits)</p>	<p>Column method- regrouping. (up to 4 digits)</p>	<p>Column method- regrouping. (with more than 4 digits) (Decimals- with the same amount of decimal places)</p>	<p>Column method- regrouping. (Decimals- with different amounts of decimal places)</p>
Subtraction	<p>Taking away ones</p> <p>Counting back</p> <p>Find the difference</p> <p>Part whole model</p> <p>Make 10</p>	<p>Counting back</p> <p>Find the difference</p> <p>Part whole model</p> <p>Make 10</p> <p>Column method- no regrouping</p>	<p>Column method with regrouping. (up to 3 digits)</p>	<p>Column method with regrouping. (up to 4 digits)</p>	<p>Column method with regrouping. (with more than 4 digits) (Decimals- with the same amount of decimal places)</p>	<p>Column method with regrouping. (Decimals- with different amounts of decimal places)</p>
Multiplication	<p>Doubling</p> <p>Counting in multiples</p> <p>Arrays (with support)</p>	<p>Doubling</p> <p>Counting in multiples</p> <p>Repeated addition</p> <p>Arrays- showing commutative multiplication</p>	<p>Counting in multiples</p> <p>Repeated addition</p> <p>Arrays- showing commutative multiplication</p> <p>Grid method</p>	<p>Column multiplication</p> <p>(2 and 3 digit multiplied by 1 digit)</p>	<p>Column multiplication</p> <p>(up to 4 digit numbers multiplied by 1 or 2 digits)</p>	<p>Column multiplication</p> <p>(multi digit up to 4 digits by a 2 digit number)</p>
Division	<p>Sharing objects into groups</p> <p>Division as grouping</p>	<p>Division as grouping</p> <p>Division within arrays</p>	<p>Division within arrays</p> <p>Division with a remainder</p> <p>Short division (2 digits by 1 digit- concrete and pictorial)</p>	<p>Division within arrays</p> <p>Division with a remainder</p> <p>Short division (up to 3 digits by 1 digit- concrete and pictorial)</p>	<p>Short division</p> <p>(up to 4 digits by a 1 digit number interpret remainders appropriately for the context)</p>	<p>Short division</p> <p>Long division</p> <p>(up to 4 digits by a 2 digit number- interpret remainders as whole numbers, fractions or round)</p>

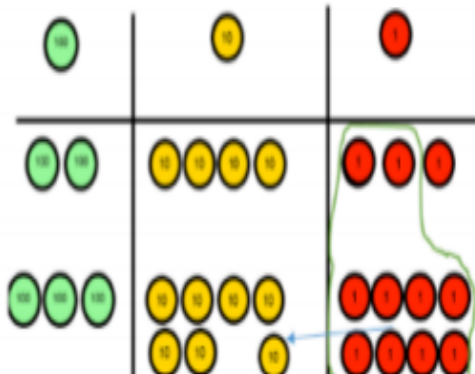
CPA

Concrete	Pictorial	Abstract
 Three green square blocks, each with a circular hole on the front face and a smaller circular hole on the top face, arranged in a triangular pattern (two on top, one on the bottom).	 Three yellow circles with blue outlines, arranged in a triangular pattern (two on top, one on the bottom).	<p data-bbox="1837 772 1964 972">3</p>

Addition

Concrete

Use of place value counters to add HTO+TO, HTO+HTO etc. When there are 10 ones in the 1s column- we exchange for 1 ten; when there is 10 tens in the 10s column - we exchange for 1 hundred.

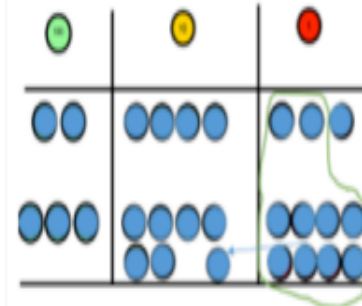


Pictorial

Children to represent the counters in a place value chart, circling when they make an exchange.

If the children are completing

a word problem, draw a bar model to represent what it's asking them to do.



?	
243	368

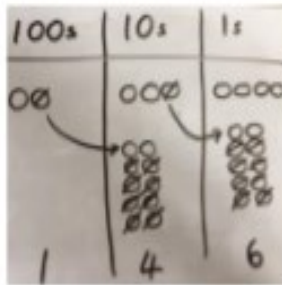
Abstract

$$\begin{array}{r} 243 \\ +368 \\ \hline 611 \\ \hline 1 \quad 1 \end{array}$$

Subtraction

Pictorial

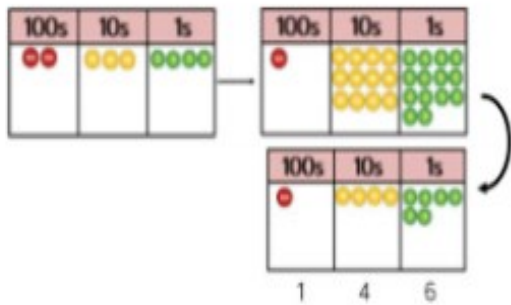
Represent the place value counters pictorially; remembering to show what has been exchanged.



Concrete

Column method; using place value counters.

234-88

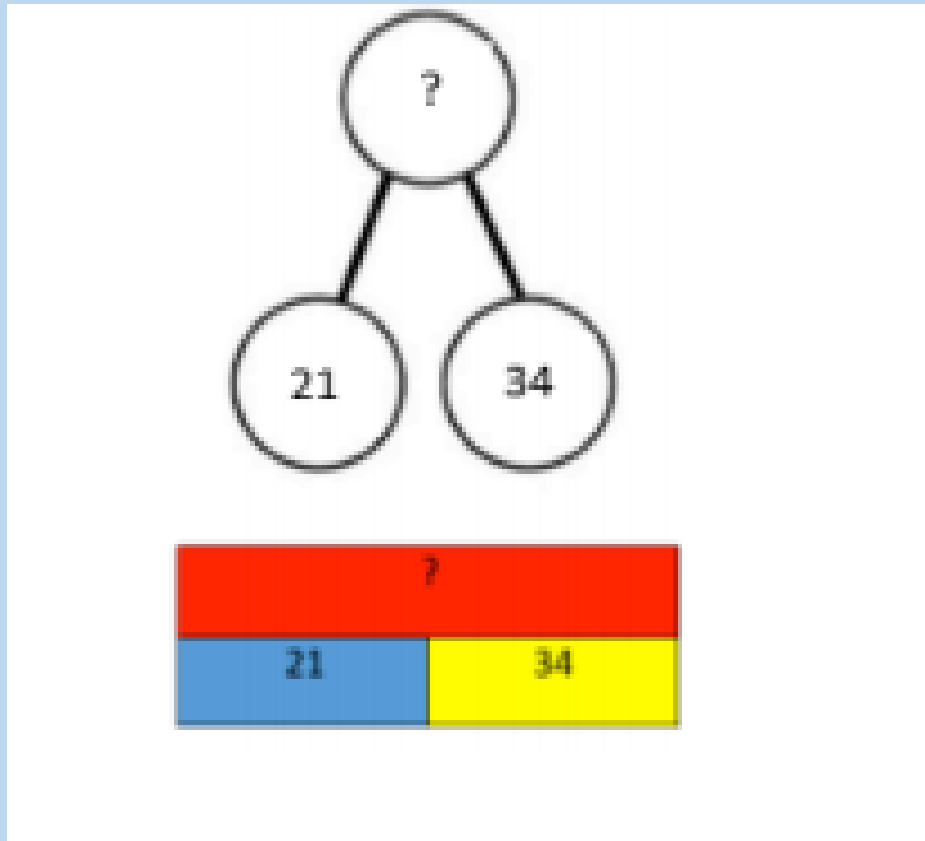


Abstract

Formal column method. Children must understand what has happened when they have crossed out digits.

$$\begin{array}{r} \overset{2}{2}\overset{1}{3}4 \\ - 88 \\ \hline 6 \end{array}$$

Addition/Subtraction Variation



Missing digit calculations

$$\begin{array}{r} 39\Box \\ - \Box\Box6 \\ \hline \Box05 \end{array}$$

What's the calculation? What's the answer?

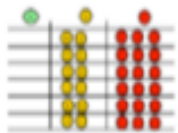


Multiplication

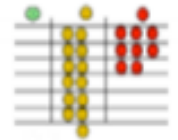
Concrete

Formal Column Method with place value counters.

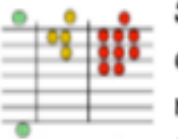
$$6 \times 23$$



Step 1: get 6 lots of 23



Step 2: 6×3 is 18. Can I make an exchange? Yes! Ten ones for one ten....



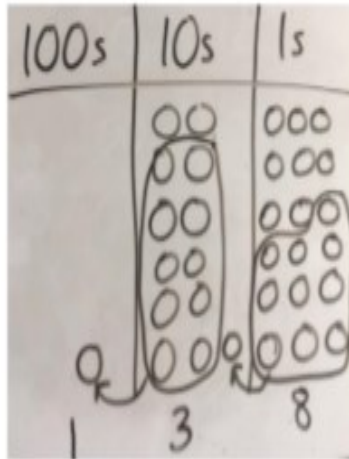
Step 3: 6×2 tens and my extra ten is 13 tens. Can I make an exchange? Yes! Ten tens for one hundred...



Step 4- what do I have I each column?

Pictorial

Children to represent the counters/ base 10 pictorially.



Abstract

$$6 \times 23 =$$

$$\begin{array}{r} 23 \\ \times 6 \\ \hline 138 \\ 11 \end{array}$$

$$\begin{array}{r} 124 \\ \times 26 \\ \hline 744 \\ 2480 \\ \hline 3224 \\ 11 \end{array}$$

Answer: 3224

Division

Concrete



$$\begin{array}{r} 0212 \\ 12 \overline{)2544} \\ \underline{24} \\ 14 \\ \underline{12} \\ 20 \\ \underline{24} \\ 0 \end{array}$$

$2544 \div 12$
How many groups of 12 thousands do we have? None



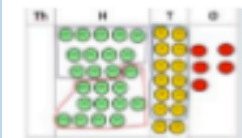
Exchange 2 thousand for 20 hundreds.



$$\begin{array}{r} 02 \\ 12 \overline{)2544} \\ \underline{24} \\ 1 \end{array}$$

How many groups of 12 are in 25 hundreds? 2 groups. Circle them.

We have grouped 24 hundreds so can take them off and we are left with one.



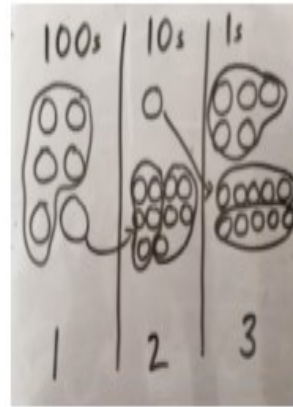
$$\begin{array}{r} 021 \\ 12 \overline{)2544} \\ \underline{24} \\ 14 \\ \underline{12} \\ 2 \end{array}$$

Exchange the one hundred for ten tens so now we have 14 tens. How many groups of 12 are in 14? 1 remainder 2.



Exchange the two tens for twenty ones so now we have 24 ones. How many groups of 12 are in 24? 2

Children to represent the counters pictorially.



Abstract

$$12 \overline{)2544}^0$$

Step one- exchange 2 thousand for 20 hundreds so we now have 25 hundreds.

$$12 \overline{)2544}^{02}$$

Step two- How many groups of 12 can I make with 25 hundreds? The 24 shows the hundreds we have grouped. The one is how many hundreds we have left.

$$12 \overline{)2544}^{021}$$

Exchange the one hundred for 10 tens. How many groups of 12 can I make with 14 tens?

The 14 shows how many tens I have, the 12 is how many I grouped and the 2 is how many tens I have left.

$$12 \overline{)2544}^{0212}$$

Exchange the 2 tens for 20 ones. The 24 is how many ones I have grouped and the 0 is what I have left.

Multiplication/Division Variation

Using the part whole model below, how can you divide 615 by 5 without using short division?



I have £615 and share it equally between 5 bank accounts. How much will be in each account?

615 pupils need to be put into 5 groups. How many will be in each group?

Mai had to swim 23 lengths, 6 times a week. How many lengths did she swim in one week?

Tom saved 23p three days a week. How much did he save in 2 weeks?

Find the product of 6 and 23.

$$6 \times 23 =$$

$$\square = 6 \times 23$$

$$\begin{array}{r} 6 \quad 23 \\ \times \underline{23} \quad \times \underline{6} \\ \hline \quad \hline \end{array}$$

Key language

Addition - sum, total, parts and wholes, plus, add, altogether, more than, 'is equal to' 'is the same as'.

Subtraction - take away, less than, the difference, subtract, minus, fewer, decrease.

Multiplication - double times, multiplied by, the product of, groups of, lots of.

Division - share, group, divide, divided by, half.