

Numbers and the Number System

- count in steps of 2, 3, and 5 from 0, and in tens from any number, forward and backward
- recognise the place value of each digit in a two-digit number (tens, ones)
- identify, represent and estimate numbers using different representations, including the number line □ compare and order numbers from 0 up to 100; use <, > and = signs
- read and write numbers to at least 100 in numerals and in words
- use place value and number facts to solve problems.

Fractions and Decimals

- recognise, find, name and write fractions $\frac{1}{3}$, $\frac{1}{4}$, $\frac{2}{4}$, and $\frac{3}{4}$ of a length, shape, set of objects or quantity
- write simple fractions for example, $\frac{1}{2}$ of 6 = 3 and recognise the equivalence of $\frac{2}{4}$ and $\frac{1}{2}$

Addition and Subtraction

- solve problems with addition and subtraction:
 - ⇒ using concrete objects and pictorial representations, including those involving numbers, quantities and measures
 - ⇒ applying their increasing knowledge of mental and written methods
- recall and use addition and subtraction facts to 20 fluently, and derive and use related facts up to 100
- add and subtract numbers using concrete objects, pictorial representations, and mentally, including:
 - ⇒ a two-digit number and ones
 - ⇒ a two-digit number and tens
 - ⇒ two two-digit numbers
 - ⇒ adding three one-digit numbers
- show that addition of two numbers can be done in any order (commutative) and subtraction of one number from another cannot
- recognise and use the inverse relationship between addition and subtraction and use this to check calculations and solve missing number problems.

Multiplication and Division

- recall and use multiplication and division facts for the 2, 5 and 10 multiplication tables, including recognising odd and even numbers
- calculate mathematical statements for multiplication and division within the multiplication tables and write them using the multiplication (x), division (÷) and equals (=) signs
- show that multiplication of two numbers can be done in any order (commutative) and division of one number by another cannot
- solve problems involving multiplication and division, using materials, arrays, repeated addition, mental methods, and multiplication and division facts, including problems in contexts.

Geometry

- identify and describe the properties of 2-D shapes, including the number of sides and line symmetry in a vertical line
- identify and describe the properties of 3-D shapes, including the number of edges, vertices and faces □ identify 2-D shapes on the surface of 3-D shapes, [for example, a circle on a cylinder and a triangle on a pyramid]
- compare and sort common 2-D and 3-D shapes and everyday objects.
- order and arrange combinations of mathematical objects in patterns and sequences
- use mathematical vocabulary to describe position, direction and movement, including movement in a straight line and distinguishing between rotation as a turn and in terms of right angles for quarter, half and three-quarter turns (clockwise and anti-clockwise).

Measurement

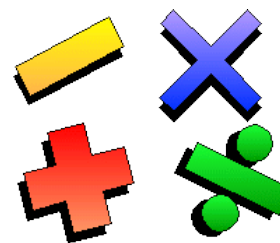
- choose and use appropriate standard units to estimate and measure length/height in any direction (m/cm); mass (kg/g); temperature (°C); capacity (litres/ml) to the nearest appropriate unit, using rulers, scales, thermometers and measuring vessels
- compare and order lengths, mass, volume/capacity and record the results using >, < and =
- recognise and use symbols for pounds (£) and pence (p); combine amounts to make a particular value
- find different combinations of coins that equal the same amounts of money
- solve simple problems in a practical context involving addition and subtraction of money of the same unit, including giving change
- compare and sequence intervals of time
- tell and write the time to five minutes, including quarter past/to the hour and draw the hands on a clock face to show these times
- know the number of minutes in an hour and the number of hours in a day.

Statistics

- interpret and construct simple pictograms, tally charts, block diagrams and simple tables
- ask and answer simple questions by counting the number of objects in each category and sorting the categories by quantity
- ask and answer questions about totalling and comparing categorical data



Woodfall Primary School



Year 2

Mathematics

Calculation Strategies

This leaflet aims to inform you of some calculation strategies that your children will be using in school. This will hopefully aid the completion of homework. However, the strategies used will be dependant on what is needed by your child and not all strategies will be necessarily be used.

ADDITION

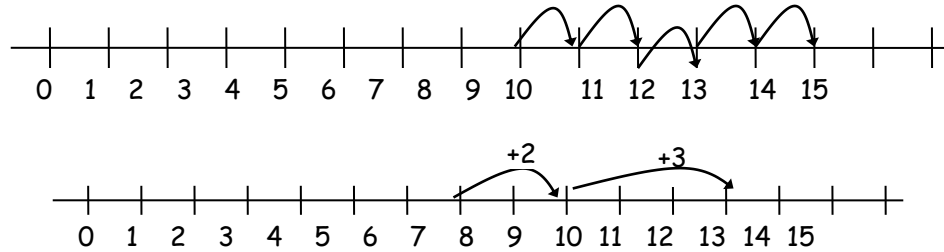
Number Lines - Number lines and practical resources (e.g. bead strings) support calculation. Number lines should be annotated and may be accompanied by informal jottings. Count on from the largest number irrespective of the order of the calculation.

Counting on first in ones

$$8 + 5 = 13 \quad \quad \quad +1 \quad +1 \quad +1 \quad +1 \quad +1$$

Bridging through 10

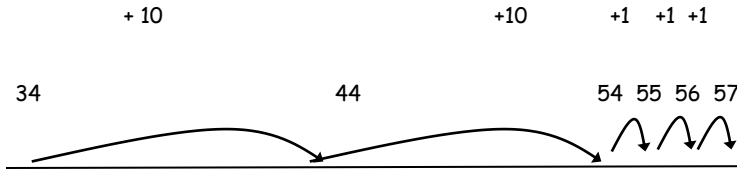
$$8 + 5 = 13$$



Counting on tens and ones

The number line can be used for progressing to larger numbers, in preparation for partitioning.

$$34 + 23 = 57$$



Counting on in multiples of tens and ones—Using fewer steps by adding the ones and eventually tens in one jump (by using the known facts $4 + 3 = 7$ and $30 + 20 = 50$).

Partitioning—This will be used alongside number lines.

$$58 + 87$$

$$50 + 80 = 130$$

$$8 + 7 = 15$$

$$130 + 15 = 145$$

Leading to partitioned numbers being written under one another: -

$$\begin{array}{r} 50 \quad 8 \\ + \quad \quad \end{array}$$

$$\begin{array}{r} 80 \quad 7 \\ \hline \end{array}$$

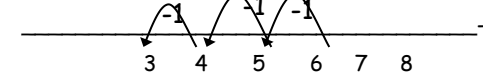
$$\begin{array}{r} 130 \quad 15 \\ \hline \end{array} = 145$$

SUBTRACTION

Pictorial and practical subtraction—children may use objects and or pictures to aid the subtraction of numbers. **Number Lines** - Number lines and practical resources (e.g. bead strings) support calculation. Number lines should be annotated and may be accompanied by informal jottings.

COUNTING BACK

$$6 - 3 = 3$$

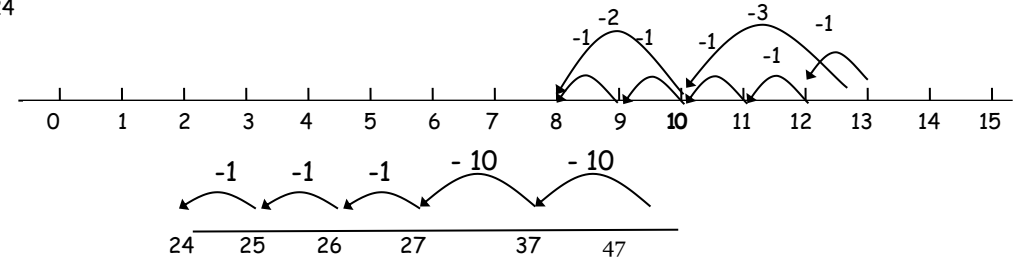


Children then begin to use numbered lines to support their own calculations - using a numbered line to count back in ones, leading to bridging through a multiple of 10.

$$13 - 5 = 8$$

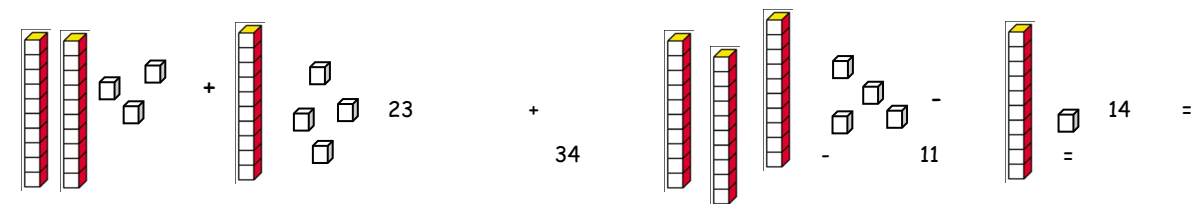
Larger numbers will be introduced with children counting back in tens and ones, leading to fewer steps.

$$47 - 23 = 24$$



Dienes -

Throughout addition and subtraction children will have the opportunity to use Dienes to support their learning.



Partitioning— children may be encouraged to partition the

number before subtracting.

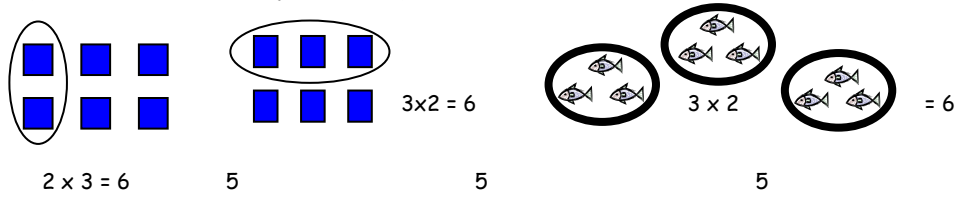
$$\text{E.g. } 47 - 23 =$$

$$47 - 20 = 27$$

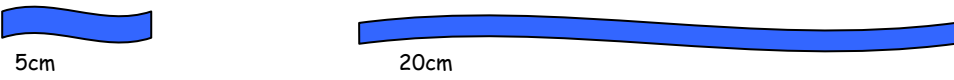
$$27 - 3 = 24$$

MULTIPLICATION

Pictorial and practical Multiplication—Children will experience equal groups of objects and will count in 2s and 10s and begin to count in 5s. They will work on practical problem solving activities involving equal sets or groups. They will visualise sets of objects in arrays.



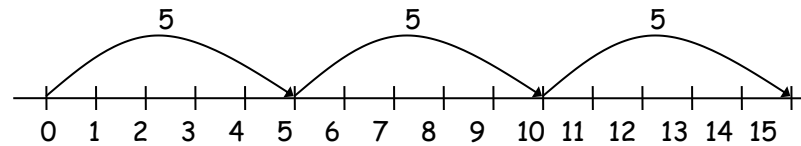
Scaling—
that is 4 times as long as the blue ribbon e.g. Find a ribbon



Number Lines - Repeated Addition

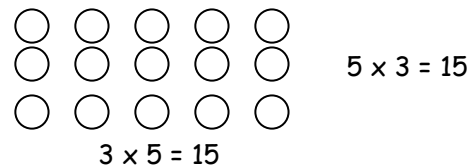
3 times 5 is $5 + 5 + 5 = 15$
 or 3 lots of 5
 or 5×3 (record as 5×3 so the association is "3 lots of 5")

$5 \times 3 = 5 + 5 + 5$



Commutativity—Children should know that 3×5 has the same answer as 5×3 . This can also be shown on the number line.

Arrays—Children should be able to model a multiplication calculation using an array



MENTAL CALCULATION FOR MULTIPLICATION

Counting in equal steps, Doubling and halving, Applying the knowledge of doubles and halves to known facts.

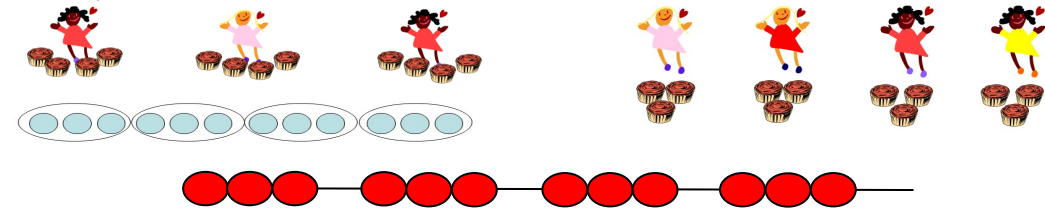
e.g. 8×4 is double 4×4

DIVISION

Pictorial and practical division—Children will understand equal groups and share items out in play and problem solving. They will count in 2s and 10s and later in 5s. Children will develop their understanding of division and use jottings to support calculation.

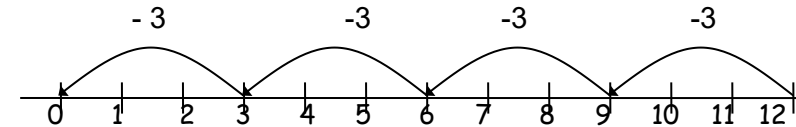
$12 \div 3 = 4$

$12 \div 4 = 3$



Number Lines—repeated subtraction

$12 \div 3 = 4$



MENTAL CALCULATION FOR DIVISION

Doubling and halving

Knowing that halving is dividing by 2