## Reasoning about Number System and Measure

## Counting

- count in steps of 2,3 , and 5 from 0 , and in tens from any number, forward and backward
- interpret and construct simple pictograms, tally charts, block diagrams and simple tables (1,2,5 and 10)


## Recognising place value

- recognise the place value of each digit in a two-digit number tens, ones) e.g. $23=20+3$ or 10+13
- identify, represent and estimate numbers using different representations, including the number line ( scales of 1,2,5 and 10 and scales where not all numbers are given)
- read and write numbers to at least 100 in numerals and in words
- recognise and use symbols for pounds (£) and pence (p); combine amounts to make a particular value


## Comparing

- compare and order numbers from 0 up to 100; use <, > and = signs
- compare and order lengths, mass, volume/capacity and record the results using >, < and =
- compare and sequence intervals of time


## Problem Solving

- use place value and number facts to solve problems.


## Reasoning about Fractions

- 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).
- recognise, find, name and write fractions
$1 / 3,1 / 4,2 / 4$ and $3 / 4$ of a length, shape, set of objects or quantity
- write simple fractions for example, $1 / 2$ Of $6=3$ and recognise the equivalence of $2 / 4$ and $1 / 2$


## Reasoning about 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 at least four of the bonds for 10 and reason about associated facts
- recall and use addition and subtraction facts to 20 fluently, , reason about them and derive and use related facts up to 100 (e.g. If I know $6+4=10$, then $16+4$ $=20$ then $60+40=100$ )

Add and subtract numbers using concrete objects, pictorial representations, and mentally, including:

$$
\begin{aligned}
& \text { a two-digit number and ones }(54+9), \quad(45+3) \\
& \circ \quad \text { a two-digit number and tens }(54+20) \\
& \text { two two-digit numbers }(48+35,72-17) \\
& \circ \quad \text { •adding three one-digit numbers }
\end{aligned}
$$

- 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 (use reasoning about numbers and relationships to solve more complex problems and explain their thinking e.g. $17+62=51+4+$ ?, multi-step addition/subtraction problems)
- 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


## 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.


## Reasoning about Measures

- choose and use appropriate standard units to estimate and measure ength/height in any direction ( $\mathrm{m} / \mathrm{cm}$ ); mass ( $\mathrm{kg} / \mathrm{g}$ ); temperature $\left({ }^{\circ} \mathrm{C}\right)$; capacity (litres $/ \mathrm{ml}$ ) to the nearest appropriate unit, using rulers, scales, thermometers and measuring vessels (read scales in $1 \mathrm{~s}, 2 \mathrm{~s}, 5 \mathrm{~s}, 10 \mathrm{~s}$, read scales where not all numbers are given, estimate points in between)
- 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.


## Reasoning about Multiplication and Division

- recall and use multiplication and division facts for the 2,5 and 10 multiplication tables, including recognising odd and even numbers
- recall and use multiplication and division facts for 2,5 and 10 and make deductions outside known facts
- calculate mathematical statements for multiplication and division within the multiplication tables and write them using the multiplication $(\times)$, division $(\div)$ 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. ( solve unfamiliar word problems that involve more than one step e.g. which would you rather 4 packets @ 5p or 3 packets @10p)


## 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.


## Reasoning about Geometry - properties of shape

- 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 (describe similarities and differences)


## Geometry - position and direction

order and arrange combinations of mathematical objects in patterns and sequences

## Reasoning about Statistics

-interpret and construct simple pictograms, tally charts, block diagrams and simple tables (read scales in divisions of $1,2,5$ and 10 s, read scales where not all numbers on the scale are given) -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

