

MATHS EYFS page 1



Fluency

know the fundamentals



Reasoning

enquiry, justification, conjecture



Problem Solving

application of skills in genuine contexts

NUMBER

Knowledge

- **Have a deep understanding of number to 10, including the composition of each number**
- **Subitise (recognise quantities without counting) up to 5**
- **Automatically recall (without reference to rhymes, counting or other aids) number bonds up to 5 (including subtraction facts) and some number bonds to 10, including double facts.**
- Link the numeral to its number value

Skills:

- Count by matching one number name to each item
- Count out a smaller number from a larger group
- Show numbers up to 4 and 5 on fingers without counting

Numerical patterns

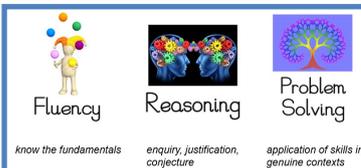
Knowledge

- **Verbally count beyond 20, recognising the pattern of the counting system**
- **Compare quantities up to 10 in different contexts, recognising when one quantity is greater than, less than or the same as the other quantity**
- **Explore and represent patterns within numbers up to 10, including evens and odds, double facts and how quantities can be distributed equally.**
- Understand the 'one more than/one less than' relationship between consecutive numbers

Skills:

- Use the language 'more than', 'less than', 'fewer', 'the same as', 'equal to'.
- Distribute items evenly ie. 3 in each bag

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FRACTIONS

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MEASUREMENT

Knowledge

- Compare length, weight and capacity

Skills

- Make and test predictions, ie. Which cup will hold more?
- Use vocabulary 'than' - ie. This is longer than that one

GEOMETRY

Properties of shapes

Knowledge

- Select, rotate and manipulate shapes to develop spatial reasoning skills.
- Compose and decompose shapes so that children recognise a shape can have other shapes within it, just as numbers can.
- Continue, copy and create repeating patterns.
- Name common 2D and 3D shapes

Skills

- Copy 2D and 3D shape patterns
- Explore 2D shapes within 3D shapes
- Begin to describe 2D and 3D shapes

Position and direction

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MATHS Y1 page 1



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NUMBER

Knowledge

- count to and across 100, forwards and backwards, beginning with 0 or 1, or from any given number
- count, read and write numbers to 100 in numerals; count in multiples of twos, fives and tens
- given a number, identify one more and one less
- identify and represent numbers using objects and pictorial representations including the number line, and use the language of: equal to, more than, less than (fewer), most, least
- Recognise place value in numbers beyond 20

Skills

- To practice counting until they are fluent
- Recognise patterns in the number system

Addition and Subtraction

Knowledge

- read, write and interpret mathematical statements involving addition (+), subtraction (−) and equals (=) signs
- represent and use number bonds and related subtraction facts within 20
- add and subtract one-digit and two-digit numbers to 20, including zero
- solve one-step problems that involve addition and subtraction, using concrete objects and pictorial representations, and missing number problems such as $7 = - 9$.

Skills

- Memorise and reason about number bonds
- Understand the relationship between addition and subtraction
- They discuss and solve problems in familiar practical contexts, including using quantities

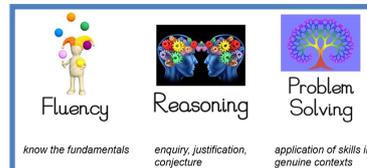
Multiplication and Division

Knowledge

- solve one-step problems involving multiplication and division, by calculating the answer using concrete objects, pictorial representations and arrays with the support of the teacher

Skills

- make connections between arrays, number patterns, and counting in twos, fives and tens.
- Understand multiplication and division, doubling numbers and quantities and finding simple fractions of objects, numbers and quantities.



FRACTIONS

Knowledge

- recognise, find and name a half as one of two equal parts of an object, shape or quantity
- recognise, find and name a quarter as one of four equal parts of an object, shape or quantity.

Skills

- recognise and find half a length, quantity, set of objects or shape
- recognise and combine halves and quarters as parts of a whole

MEASUREMENT

Knowledge

- compare, describe and solve practical problems for:
lengths and heights [for example, long/short, longer/shorter, tall/short, double/half]
mass/weight [for example, heavy/light, heavier than, lighter than]
capacity and volume [for example, full/empty, more than, less than, half, half full, quarter]
time [for example, quicker, slower, earlier, later]

- measure and begin to record the following:

lengths and heights

mass/weight

capacity and volume

time (hours, minutes, seconds)

- recognise and know the value of different denominations of coins and notes
- sequence events in chronological order using language [for example, before and after, next, first, today, yesterday, tomorrow, morning, afternoon and evening]
- recognise and use language relating to dates, including days of the week, weeks, months and years
- tell the time to the hour and half past the hour and draw the hands on a clock face to show these times.

Skills

- Measure using non-standard units
- use measuring tools such as a ruler, weighing scales and containers

GEOMETRY

Properties of shapes

Knowledge

- recognise and name common 2-D and 3-D shapes, including:

2-D shapes [for example, rectangles (including squares), circles and triangles]

3-D shapes [for example, cuboids (including cubes), pyramids and spheres].

Skills

- recognise these shapes in different orientations and sizes, and know that rectangles, triangles, cuboids and pyramids are not always similar to each other
- handle common 2-D and 3-D shapes, naming these and related everyday objects fluently

Position and direction

Knowledge

- describe position, direction and movement, including whole, half, quarter and three quarter turns.

Skills

- make whole, half, quarter and three-quarter turns in both directions and connect turning clockwise with movement on a clock face.



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MATHS Y2 page 1

NUMBER

Knowledge

- 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

Skills

- Solve a variety of related problems to develop fluency
- Develop their recognition of patterns within the number system and represent them in different ways
- Pupils should partition numbers in different ways (for example, $23 = 20 + 3$ and $23 = 10 + 13$) to support subtraction
- Reason with, discuss and solve problems that emphasise the value of each digit in two-digit numbers

Addition and Subtraction

Knowledge

- 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

Skills

- Practise addition and subtraction to 20 to become increasingly fluent in deriving facts
- Check their calculations, including by adding to check subtraction and adding numbers in a different order to check addition (for example, $5 + 2 + 1 = 1 + 5 + 2 = 1 + 2 + 5$). This establishes commutativity and associativity of addition

Multiplication and Division

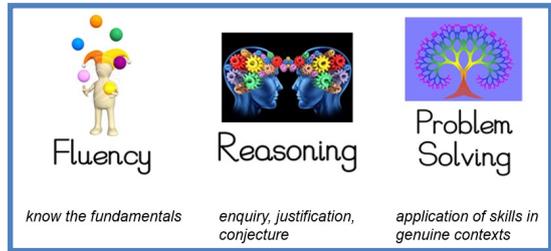
Knowledge

- 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 (\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

Skills

- They begin to use other multiplication tables and recall multiplication facts, including using related division facts to perform written and mental calculations.
- They use commutativity and inverse relations to develop multiplicative reasoning

MATHS Y2 page 2



FRACTIONS

Knowledge

- 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 $\frac{1}{2}$.

Skills

- Count in fractions up to 10
- Connect unit fractions to equal sharing and grouping, to numbers when they can be calculated, and to measures, finding fractions of lengths, quantities, sets of objects or shapes.

MEASUREMENT

Knowledge

- Choose and use appropriate standard units to estimate and measure length/height in any direction (m/cm); mass (kg/g); temperature ($^{\circ}$ 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

Skills

- Use the appropriate language and record using standard abbreviations.
- Comparing measures includes simple multiples such as 'half as high'; 'twice as wide'.
- Become fluent in telling the time on analogue clocks and recording it.
- Become fluent in counting and recognising coins. They read and say amounts of money confidently and use the symbols £ and p accurately, recording pounds and pence separately.

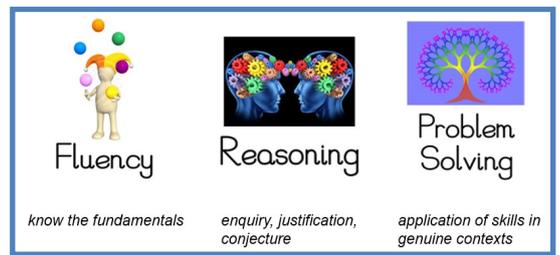
GEOMETRY

Knowledge

- 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)

Skills

- Identify, compare and sort shapes on the basis of their properties and use vocabulary precisely, such as sides, edges, vertices and faces
- Read and write names for shapes that are appropriate for their word reading and spelling.
- Draw lines and shapes using a straight edge.



MATHS Y2 page 3

STATISTICS

Knowledge

- interpret and construct simple pictograms, tally charts, block diagrams and 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

Skills

- interpret, collate, organise and compare information