Early Years Foundation Stage

Mathematics

Mathematics is a specific area and consists of:

Number
Shape, space and measure

The ways in which the child engages with other people and their environment – playing and exploring, active learning, and creating and thinking critically – underpin learning and development across all areas and support the child to remain an effective and motivated learner.

The **specific** areas include essential skills and knowledge. They grow out of the prime areas, and provide important contexts for learning. The specific areas of Literacy, Mathematics, Understanding The World and Expressive Arts and Design.

The Unique Child reaches out to relate to people and things through the Characteristics of Effective Learning, which move through all areas of learning.

- playing and exploring

- active learning

- creating and thinking critically

Curriculum 2014 - Mathematics

Purpose of study

Mathematics is a creative and highly interconnected discipline that has been developed over centuries, providing the solution to some of history's most intriguing problems. It is essential to everyday life, critical to science, technology and engineering, and necessary for financial literacy and most forms of employment. A high-quality mathematics education therefore provides a foundation for understanding the world, the ability to reason mathematically, an appreciation of the beauty and power of mathematics, and a sense of enjoyment and curiosity about the subject.

Aims

The national curriculum for mathematics aims to ensure that all pupils:

- become **fluent** in the fundamentals of mathematics, including through varied and frequent practice with increasingly complex problems over time, so that pupils develop conceptual understanding and the ability to recall and apply knowledge rapidly and accurately
- **reason mathematically** by following a line of enquiry, conjecturing relationships and generalisations, and developing an argument, justification or proof using mathematical language
- can **solve problems** by applying their mathematics to a variety of routine and non-routine problems with increasing sophistication, including breaking down problems into a series of simpler steps and persevering in seeking solutions

Mathematics is an interconnected subject in which pupils need to be able to move fluently between representations of mathematical ideas. The programmes of study are, by necessity, organised into apparently distinct domains, but pupils should make rich connections across mathematical ideas to develop fluency, mathematical reasoning and competence in solving increasingly sophisticated problems. They should also apply their mathematical knowledge to science and other subjects.

The expectation is that the majority of pupils will move through the programmes of study at broadly the same pace. However, decisions about when to progress should always be based on the security of pupils' understanding and their readiness to progress to the next stage. Pupils who grasp concepts rapidly should be challenged through being offered rich and sophisticated problems before any acceleration through new content. Those who are not sufficiently fluent with earlier material should consolidate their understanding, including through additional practice, before moving on.

Information and communication technology (ICT)

Calculators should not be used as a substitute for good written and mental arithmetic. They should therefore only be introduced near the end of key stage 2 to support pupils' conceptual understanding and exploration of more complex number problems, if written and mental arithmetic are secure. In both primary and secondary schools, teachers should use their judgement about when ICT tools should be used.

Spoken language

The national curriculum for mathematics reflects the importance of spoken language in pupils' development across the whole curriculum – cognitively, socially and linguistically. The quality and variety of language that pupils hear and speak are key factors in developing their mathematical vocabulary and presenting a mathematical justification, argument or proof. They must be assisted in making their thinking clear to themselves as well as others, and teachers should ensure that pupils build secure foundations by using discussion to probe and remedy their misconceptions.

Key stage 1 - years 1 and 2

The principal focus of mathematics teaching in key stage 1 is to ensure that pupils develop confidence and mental fluency with whole numbers, counting and place value. This should involve working with numerals, words and the 4 operations, including with practical resources [for example, concrete objects and measuring tools].

At this stage, pupils should develop their ability to recognise, describe, draw, compare and sort different shapes and use the related vocabulary. Teaching should also involve using a range of measures to describe and compare different quantities such as length, mass, capacity/volume, time and money.

By the end of year 2, pupils should know the number bonds to 20 and be precise in using and understanding place value. An emphasis on practice at this early stage will aid fluency.

Pupils should read and spell mathematical vocabulary, at a level consistent with their increasing word reading and spelling knowledge at key stage 1.

Year 1 programme of study

Number - number and place value

Pupils should be taught to:

- 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 2s, 5s and 10s
- given a number, identify 1 more and 1 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
- read and write numbers from 1 to 20 in numerals and words
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Notes and guidance (non-statutory)

Pupils practise counting (1, 2, 3…), ordering (for example, first, second, third…), and to indicate a quantity (for example, 3 apples, 2 centimetres), including solving simple concrete problems, until they are fluent.

Pupils begin to recognise place value in numbers beyond 20 by reading, writing, counting and comparing numbers up to 100, supported by objects and pictorial representations.

They practise counting as reciting numbers and counting as enumerating objects, and counting in 2s, 5s and 10s from different multiples to develop their recognition of patterns in the number system (for example, odd and even numbers), including varied and frequent practice through increasingly complex questions.

They recognise and create repeating patterns with objects and with shapes.

Number - addition and subtraction
Pupils should be taught to:

- 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 0
- solve one-step problems that involve addition and subtraction, using concrete objects and pictorial representations, and missing number problems such as 7 = ? – 9

Notes and guidance (non-statutory)
Pupils memorise and reason with number bonds to 10 and 20 in several forms (for example, 9 + 7 = 16; 16 − 7 = 9; 7 = 16 − 9). They should realise the effect of adding or subtracting 0. This establishes addition and subtraction as related operations.

Pupils combine and increase numbers, counting forwards and backwards.

They discuss and solve problems in familiar practical contexts, including using quantities. Problems should include the terms: put together, add, altogether, total, take away, distance between, difference between, more than and less than, so that pupils develop the concept of addition and subtraction and are enabled to use these operations flexibly.

Number - multiplication and division
Pupils should be taught to:

- 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

Notes and guidance (non-statutory)
Through grouping and sharing small quantities, pupils begin to understand: multiplication and division; doubling numbers and quantities; and finding simple fractions of objects, numbers and quantities.

They make connections between arrays, number patterns, and counting in 2s, 5s and 10s.

Number - fractions
Pupils should be taught to:

- recognise, find and name a half as 1 of 2 equal parts of an object, shape or quantity
- recognise, find and name a quarter as 1 of 4 equal parts of an object, shape or quantity

Notes and guidance (non-statutory)
Pupils are taught half and quarter as 'fractions of' discrete and continuous quantities by solving problems using shapes, objects and quantities. For example, they could recognise and find half a length, quantity, set of objects or shape. Pupils connect halves and quarters to the equal sharing and grouping of sets of objects and to measures, as well as recognising and combining halves and quarters as parts of a whole.

Measurement
Pupils should be taught to:

- 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

Notes and guidance (non-statutory)
The pairs of terms: mass and weight, volume and capacity, are used interchangeably at this stage.

Pupils move from using and comparing different types of quantities and measures using non-standard units, including discrete (for example, counting) and continuous (for example, liquid) measurement, to using manageable common standard units.

In order to become familiar with standard measures, pupils begin to use measuring tools such as a ruler, weighing scales and containers.

Pupils use the language of time, including telling the time throughout the day, first using o'clock and then half past.

Geometry - properties of shapes
Pupils should be taught to:

- 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]

Notes and guidance (non-statutory)
Pupils handle common 2-D and 3-D shapes, naming these and related everyday objects fluently. They recognise these shapes in different orientations and sizes, and know that rectangles, triangles, cuboids and pyramids are not always similar to each other.

Geometry - position and direction
Pupils should be taught to:

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

Notes and guidance (non-statutory)
Pupils use the language of position, direction and motion, including: left and right, top, middle and bottom, on top of, in front of, above, between, around, near, close and far, up and down, forwards and backwards, inside and outside.

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

Year 2 programme of study

Number - number and place value

Pupils should be taught to:

- count in steps of 2, 3, and 5 from 0, and in 10s from any number, forward and backward
- recognise the place value of each digit in a two-digit number (10s, 1s)
- 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
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Notes and guidance (non-statutory)

Using materials and a range of representations, pupils practise counting, reading, writing and comparing numbers to at least 100 and solving a variety of related problems to develop fluency. They count in multiples of 3 to support their later understanding of a third.

As they become more confident with numbers up to 100, pupils are introduced to larger numbers to develop further their recognition of patterns within the number system and represent them in different ways, including spatial representations.

Pupils should partition numbers in different ways (for example, 23 = 20 + 3 and 23 = 10 + 13) to support subtraction. They become fluent and apply their knowledge of numbers to reason with, discuss and solve problems that emphasise the value of each digit in two-digit numbers. They begin to understand 0 as a place holder.

Number - addition and subtraction
Pupils should be taught to:

- 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 1s
  - a two-digit number and 10s
  - 2 two-digit numbers
  - adding 3 one-digit numbers
- show that addition of 2 numbers can be done in any order (commutative) and subtraction of 1 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

Notes and guidance (non-statutory)
Pupils extend their understanding of the language of addition and subtraction to include sum and difference.

Pupils practise addition and subtraction to 20 to become increasingly fluent in deriving facts such as using 3 + 7 = 10; 10 − 7 = 3 and 7 = 10 − 3 to calculate 30 + 70 = 100; 100 − 70 = 30 and 70 = 100 − 30. They 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.

Recording addition and subtraction in columns supports place value and prepares for formal written methods with larger numbers.

Number - multiplication and division
Pupils should be taught to:

- 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 (×), division (÷) and equals (=) signs
- show that multiplication of 2 numbers can be done in any order (commutative) and division of 1 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

Notes and guidance (non-statutory)
Pupils use a variety of language to describe multiplication and division.

Pupils are introduced to the multiplication tables. They practise to become fluent in the 2, 5 and 10 multiplication tables and connect them to each other. They connect the 10 multiplication table to place value, and the 5 multiplication table to the divisions on the clock face. They begin to use other multiplication tables and recall multiplication facts, including using related division facts to perform written and mental calculations.

Pupils work with a range of materials and contexts in which multiplication and division relate to grouping and sharing discrete and continuous quantities, to arrays and to repeated addition. They begin to relate these to fractions and measures (for example, 40 ÷ 2 = 20, 20 is a half of 40). They use commutativity and inverse relations to develop multiplicative reasoning (for example, 4 × 5 = 20 and 20 ÷ 5 = 4).

Number - fractions
Pupils should be taught to:

- 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 $\frac{1}{2}$

Notes and guidance (non-statutory)
Pupils use fractions as 'fractions of' discrete and continuous quantities by solving problems using shapes, objects and quantities. They 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. They meet $\frac{3}{4}$ as the first example of a non-unit fraction.

Pupils should count in fractions up to 10, starting from any number and using the $\frac{1}{2}$ and $\frac{2}{4}$ equivalence on the number line (for example, 1 $\frac{1}{4}$, 1 $\frac{2}{4}$ (or 1 $\frac{1}{2}$), 1 $\frac{3}{4}$, 2). This reinforces the concept of fractions as numbers and that they can add up to more than 1.

Measurement
Pupils should be taught to:

- 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

Notes and guidance (non-statutory)
Pupils use standard units of measurement with increasing accuracy, using their knowledge of the number system. They use the appropriate language and record using standard abbreviations.

Comparing measures includes simple multiples such as 'half as high'; 'twice as wide'.

Pupils become fluent in telling the time on analogue clocks and recording it.

They 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 - properties of shapes
Pupils should be taught to:

- 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

Notes and guidance (non-statutory)
Pupils handle and name a wide variety of common 2-D and 3-D shapes including: quadrilaterals and polygons and cuboids, prisms and cones, and identify the properties of each shape (for example, number of sides, number of faces). Pupils identify, compare and sort shapes on the basis of their properties and use vocabulary precisely, such as sides, edges, vertices and faces.

Pupils read and write names for shapes that are appropriate for their word reading and spelling.

Pupils draw lines and shapes using a straight edge.

Geometry - position and direction
Pupils should be taught to:

- 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)

Notes and guidance (non-statutory)
Pupils should work with patterns of shapes, including those in different orientations.

Pupils use the concept and language of angles to describe 'turn' by applying rotations, including in practical contexts (for example, pupils themselves moving in turns, giving instructions to other pupils to do so, and programming robots using instructions given in right angles).

Statistics
Pupils should be taught to:

- 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

Notes and guidance (non-statutory)
Pupils record, interpret, collate, organise and compare information (for example, using many-to-one correspondence in pictograms with simple ratios 2, 5,10).

Mathematics - Number Steps Progression Document

Development matters in the Early Years Foundation Stage (EYFS)					
Specific area: Number					
	Aspect Number and place value	**Aspect Addition and subtraction**	**Aspect Multiplication and division**	**Aspect Fractions**	**Aspect Algebra**
Birth – 11 months	Notices changes in number of objects/ images or sounds in group of up to 3	N/A	Children need to develop an understanding of number to enable children to move onto the concept of division and multiplication	N/A	N/A
8-20 months	Develops an awareness of number names through their enjoyment of action rhymes and songs that relate to their experience of numbers.	N/A		N/A	
16-26 months	Says some counting words randomly	Beginning to organise and categorise objects e.g. putting all the teddy bears together or all the teddies and cars in separate piles	""	Beginning to organise and categorise objects e.g. putting all the teddy bears together or all the teddies and cars in separate piles	
22-36 months	Selects a small number of objects from a group when asked, for example 'please give me one', 'please give me 2.' Recite some number names in sequence Creates and experiments with symbols and marks representing ideas of number.	Begins to make comparisons between quantities Uses some language of quantities, such as 'more' and 'a lot.' Knows that a group of things changes in quantities when something is added or taken away.	""	Begins to make comparisons between quantities Uses some language of quantities, such as 'more' and 'a lot.'	

30-50 months	Uses some number names and number language spontaneously Uses some number names accurately in play. Recites number names in order to 10 Knows that number names represent how many numbers in a set Beginning to represent numbers using fingers, marks on paper or pictures Sometimes matches numeral and quantity correctly Compares two groups of objects, saying when they have the same number. Shows an interest in numerals in the environment Shows an interest in representing numbers Realises not only objects, but anything can be counted including steps, claps or jumps.	Uses some number names and number language spontaneously Uses some number names accurately in play. Recites number names in order to 10 Knows that number names represent how many numbers in a set Beginning to represent numbers using fingers, marks on paper or pictures Sometimes matches numeral and quantity correctly Compares two groups of objects, saying when they have the same number. Shows an interest in numerals in the environment Shows an interest in representing numbers Realises not only objects, but anything can be counted including steps, claps or jumps.	“”	Knows that numbers identify how many objects are in a set. Beginning to represent numbers using fingers, marks on paper or pictures. Showing curiosity about numbers by offering comments or asking questions Shows an interest in number problems Separates a group of three or four objects in different ways, beginning to recognise that the total is still the same.	

40–60+ months	Recognise some numerals of personal significance Recognises numerals 1-5 Counts up to three or four objects by saying one number name for each item Counts actions or objects which cannot be moved. Counts objects to 10 and beginning to count beyond 10 Counts up to six objects from a larger group Selects the correct numeral to represent 1 to 5, then 1 to 10 objects. Counts an irregular arrangement of up to ten objects Estimates how many objects they can see and checks by counting them **Children count reliably with numbers from one to 20, place them in order**	Recognise some numerals of personal significance Recognises numerals 1-5 Counts up to three or four objects by saying one number name for each item Counts actions or objects which cannot be moved. Counts objects to 10 and beginning to count beyond 10 Counts up to six objects from a larger group Selects the correct numeral to represent 1 to 5, then 1 to 10 objects. Counts an irregular arrangement of up to ten objects Estimates how many objects they can see and checks by counting them **Children count reliably with numbers from one to 20, place them in order**	Begins to identify own mathematical problems based on own interests and fascinations. **Children count reliably with numbers from one to 20, place them in order and say which number is one more or one less than a given number.** **Using quantities and objects, they add and subtract two single-digit numbers and count on or back to find the right answer.** **They solve problem solve problems including doubling, halving and sharing.**	Uses the language of 'more' and 'fewer' to compare two sets of objects. Finds the total number of items in two groups by counting all of them. Says the number that is one more than a given number. Find one more or one less from a group of up to five objects, then ten objects. Begins to identify own mathematical problems based on own interests and fascinations. **Children count reliably with numbers from one to 20, place them in order and say which number is one more or one less than a given number.** **Using quantities and objects, they add and subtract two single-digit numbers and count on or back to find the right answer.** **They solve problem solve problems including doubling, halving and sharing.**	

KS1
Mathematics - Number
National Curriculum 2014 – Target Tracker Statements

Mathematics - number					
	Aspect **Number and place value**	**Aspect** **Addition and subtraction**	**Aspect** **Multiplication and division**	**Aspect** **Fractions**	**Aspect** **Algebra**
Band 1 Beginning Beginning+ Within Within+ Secure Secure+	1. Count to and across 100, forwards and backwards, beginning with 0 or 1, or from any given number. *2.* Count, read and write numbers to 100 in numerals; count in multiples of twos, fives and tens. 3. Identify one more and one less of a given number. *4.* Identify and represent numbers using objects and pictorial representations including the number line, and use the language: equal to, more than, less than (fewer), most, least. *5.* Read and write numbers from 1 to 20 in numerals and words.	1. Solve problems with addition and subtraction using concrete objects and pictorial representations, including those involving numbers, quantities and measures. *2.* Solve problems with addition and subtraction, applying his/her increasing knowledge of mental and written methods. *3.* Recall and use addition and subtraction facts to 20 fluently, and derive and use related facts up to 100. 4. Add and subtract numbers using concrete objects, pictorial representations, and mentally, including a two-digit number and ones. *5.* Add and subtract numbers using concrete objects, pictorial representations, and mentally, including a two-digit number and tens. *6.*Add and subtract numbers using concrete objects, pictorial representations, and mentally, including two two-digit numbers. *7.* Add and subtract numbers using concrete objects, pictorial	1. 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.	1. Recognise, find and name a half as one of two equal parts of an object, shape or quantity. 2. Recognise, find and name a quarter as one of four equal parts of an object, shape or quantity.	1. Solve one- step problems that involve addition and subtraction, using concrete objects and pictorial representations and missing number problems such as 7 = - 9

		representations, and mentally, including adding three one-digit numbers. *8.* Show that addition of two numbers can be done in any order (commutative) and subtraction of one number from another cannot. *9.* Recognise and use the inverse relationship between addition and subtraction and use this to check calculations and solve missing number problems.			
Band 2 Beginning Beginning+ Within Within+ Secure Secure +	6. Count in steps of 2, 3, and 5 from 0, and in 10s from any number, forward and backward. 7. Recognise the place value of each digit in a two-digit number (tens, ones). 8. Identify, represent and estimate numbers using different representations, including the number line. *9.* Compare and order numbers from 0 up to 100; use <, > and = signs. *10.* Read and write numbers up to at least 100 in numerals and in words. *11.* Use place value and number facts to solve problems.	10. Recall and use multiplication and division facts for the 2, 5 and 10 multiplication tables, including recognising odd and even numbers. 11. Calculate mathematical statements for multiplication and division within the multiplication tables and write them using the multiplication (×), division (÷) and equals (=) signs. *12.* Show that multiplication of two numbers can be done in any order (commutative) and division of one number by another cannot. *13.* Solve problems involving multiplication and division, using materials, arrays, repeated addition, mental methods, and multiplication and division facts, including problems in contexts.	2. Recognise, find, name and write fractions 1/3, 1/4, 2/4 and 3/4 of a length, shape, set of objects or quantity. 3. Write simple fractions for example, 1/2 of 6 = 3 and recognise the equivalence of 2/4 and 1/2.	3. Recognise, find, name and write fractions 1/3, 1/4, 2/4 and 3/4 of a length, shape, set of objects or quantity. 4. Write simple fractions for example, 1/2 of 6 = 3 and recognise the equivalence of 2/4 and 1/2.	2. Recognise and use the inverse relationship between addition and subtraction and use this to check calculations and missing number problems.

Mathematics – Geometry and statistics Steps Progression Document

Development matters in the Early Years Foundation Stage (EYFS)				
Specific area: Shape, space and measure/ Geometry and statistics				
	Aspect Measurement	**Aspect Geometry – properties of shape**	**Aspect Geometry – position and direction**	**Aspect Statistics**
Birth – 11 months	Babies' awareness of shape, space and measure grows from their sensory awareness and opportunities to observe objects and their movements, and to play and explore.	Babies' awareness of shape, space and measure grows from their sensory awareness and opportunities to observe objects and their movements, and to play and explore.	Babies' awareness of shape, space and measure grows from their sensory awareness and opportunities to observe objects and their movements, and to play and explore.	N/A
8-20 months	Recognises big things and small things in meaningful contexts. Gets to know and enjoy daily routines, such as getting-up time, mealtimes, nappy time and bedtime.	Recognises big things and small things in meaningful contexts.		
16-26 months	Attempts sometimes successfully to fit shapes into spaces on inset boards or jigsaw puzzles Beginning to understand that things might happen 'now'. Uses blocks to create their own simple structures and arrangements. Enjoys filling and emptying containers Associates a sequence of actions with a daily routine.	Attempts sometimes successfully to fit shapes into spaces on inset boards or jigsaw puzzles Uses blocks to create their own simple structures and arrangements. Enjoys filling and emptying containers	Attempts sometimes successfully to fit shapes into spaces on inset boards or jigsaw puzzles Uses blocks to create their own simple structures and arrangements. Enjoys filling and emptying containers	

22-36 months	Beginning to categorise objects according to properties such as shape or size. Begins to use the language of size Understands some talk about immediate past and future e.g. 'before', 'later' or 'soon'. Anticipates specific time-based events such as mealtimes or home time.	Notices shapes and patterns in pictures. Beginning to categorise objects according to properties such as shape or size. Begins to use the language of size	Beginning to categorise objects according to properties such as shape or size. Begins to use the language of size	
30-50 months	Uses positional language Shows some awareness of similarities of shapes in the environment Beginning to talk about the shapes of everyday objects e.g. round and tall	Shows some awareness of similarities of shapes in the environment Shows awareness of similarities of shapes in the environment. Uses positional language Shows interest in shape by sustained construction activity or by talking about shapes or arrangements. Shows an interest in shapes in the environment. Uses shapes appropriately for tasks. Beginning to talk about the shapes of everyday objects e.g. round and tall	Shows some awareness of similarities of shapes in the environment Shows awareness of similarities of shapes in the environment. Uses positional language	

40–60+ months	Can describe their relative position such as 'behind' or 'next to'. Orders two or three items by length or height Orders two items by weight or capacity. Use familiar objects and common shapes to create and recreate patterns and build models. Uses everyday language related to time. Orders and sequences familiar events. Measures short periods of time in simple ways. **Children use every day language to talk about size, weight, capacity, position, distance, time and money to compare quantities and objects to solve problems.** **They recognise, create and describe pattern**	Beginning to use mathematical names for 'sold' 3d shapes and 'flat 2d shapes, and mathematical terms to describe shape. Select a particular named shape. Use familiar objects and common shapes to create and recreate patterns and build models. Beginning to use everyday language related to money **They recognise, create and describe pattern.** **They explore characteristics of everyday objects and shapes and use mathematical language to describe them.**	Can describe a relative position such as 'behind' or 'next to'. Order two or three items by length or height. Orders two items by weight or capacity. Use familiar objects and common shapes to create and recreate patterns and build models. Orders and sequences familiar events. **Children use every day language to talk about size, weight, capacity, position, distance, time and money to compare quantities and objects to solve problems.** **They recognise, create and describe pattern.** **They explore characteristics of everyday objects and shapes and use mathematical language to describe them.**	

KS1
Mathematics – Geometry and statistics
National Curriculum 2014 – Target Tracker Statements

Mathematics – geometry and statistics				
	Aspect **Measurement**	**Aspect** **Geometry – properties of shape**	**Aspect** **Geometry – position and direction**	**Aspect** **Statistics**
Band 1 Beginning Beginning+ Within Within+ Secure Secure+	1. Compare, describe and solve practical problems for lengths and heights e.g. long/short, longer/shorter, tall/short, double/half. *2.* Compare, describe and solve practical problems for mass/weight e.g. heavy/light, heavier than, lighter than. 3. Compare, describe and solve practical problems for capacity and volume e.g. full/empty, more than, less than, half, half full, quarter. *4.* Compare, describe and solve practical problems for time e.g. quicker, slower, earlier, later. *5.* Measure and begin to record mass/weight. *6.M*easure and begin to record capacity and volume. *7.* Recognise and know the value of different denominations of coins and notes. *8.* Sequence events in chronological order using language e.g. before and after, next, first, today, yesterday, tomorrow,	1. Recognise and name common 2-D shapes e.g. rectangles (including squares), circles and triangles. 2. Recognise and name common 3-D shapes e.g. cuboids (including cubes), pyramids and spheres.	1. Describe position, direction and movement, including whole, half, quarter and three-quarter turns.	N/A

	morning, afternoon and evening. *9.* Recognise and use language relating to dates, including days of the week, weeks, months and years. *10.* Tell the time to the hour and half past the hour and draw the hands on a clock face to show these times. 11. Measure and begin to record length/height.			
Band 2 Beginning Beginning+ Within Within+ Secure Secure+	12. 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. *13.* Compare and order lengths, mass, volume/capacity and record the results using >, < and =. *14.* Recognise and use symbols for pounds (£) and pence (p); combine amounts to make a particular value. *15.* Find different combinations of coins that equal the same amounts of money. *16.* Solve simple problems in a practical context involving	3. Identify and describe the properties of 2-D shapes, including the number of sides and line symmetry in a vertical line. *4.* Identify and describe the properties of 3-D shapes, including the number of edges, vertices and faces. *5.* Identify 2-D shapes on the surface of 3-D shapes e.g. a circle on a cylinder and a triangle on a pyramid. *6.* Compare and sort common 2-D and 3-D shapes and everyday objects.	3. Order and arrange combinations of mathematical objects in patterns and sequences. *4.* 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).	1. Interpret and construct simple pictograms, tally charts, block diagrams and simple tables. *2.* Ask and answer simple questions by counting the number of objects in each category and sorting the categories by quantity. *3.* Ask and answer questions about totalling and comparing categorical data.

	addition and subtraction of money of the same unit, including giving change. 17. Compare and sequence intervals of time. 18. 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. *19.* Remember the number of minutes in an hour and the number of hours in a day.			