Maths at Spring Hill

Milestone 1	
Key Learning EYFS	

Key Learning EYFS

Number/ Place Value:
- 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.
- Count objects actions and sounds
- Link the number symbol (numeral) with its cardinal number value.
- Rote count from 1.
- Rote count on from a given number between 1 and 10.
- Rote count back from 5 to 1 then from 10 to 1.
- Rote count back from a given number between 10 and 1.
- Know what number comes before, or after a given number.
- Say a number between two given numbers.
- Have a deep understanding of number to 10, including the composition of each number;
- Subitise (recognise quantities without counting) up to 5
- Explore and represent patterns within numbers up to 10, including odds and evens.
- Compare quantities up to 10 in different contexts, recognising when one quantity is greater than, less than or the same as the other quantity

Counting beyond 10
- *Rote count from 1.*
- *Rote count on from a given number between 1 and 20.*
- *Rote count back from 5 to 1 then from 10 to 1.*
- *Rote count back from a given number between 1 and 20.*
- *Know what number comes before, or after a given number.*
- *Say a number between two given numbers.*
- Verbally count beyond 20, recognising the pattern of the counting system

Addition and Subtraction
- *Understand the concept of addition by practically combining sets of objects to find how many and use the terminology part – part – whole.*
- *Understand the concept of subtraction by practically removing one amount from within another to find how many are left and use the terminology part – part – whole.*
- *Add two single-digit numbers totalling up to 10, using practical equipment.*

- *Subtract a single-digit number from a number up to 10, using practical equipment.*
- *Subtract a single-digit number from a number greater than 10, using practical equipment.*
- Automatically recall (without reference to rhymes, counting or other aides) number bonds up to 5 (including subtraction facts) and some number bonds to 10, including double facts.

Multiplication/Division/Fractions
- *Understand that sharing is splitting an amount into equal parts.*
- *Understand that halving is sharing into two equal parts.*
- *Understand that doubling is adding the same number to itself.*
- *Automatically recall double facts to 10.*
- Explore and represent patterns within numbers up to 10, including double facts and how quantities can be distributed equally.

Geometry
- Select rotate and manipulate shapes to develop spatial reasoning
- 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.
- *To identify and name common 2d shapes (square, rectangle, circle, triangle)*

Measurement
Time
- Talk about significant times of the day, (e.g. home time, lunch time snack time, bed time, etc).
- Use the language of comparison when talking about time, (e.g. longer/shorter; faster/slower).
- Understand and use language (e.g. before, after, yesterday, today, tomorrow).
- Sequence two or three familiar events and describe the sequence.
- Know the names of the days of the week.
- Say names of days of the week in order.

Length and Height
- *Understand that measures of distance can have different names including length, width, height.*
- Compare two objects of different length.
- Compare two objects of different width.
- Compare two objects of different height.
- *Understand and use language of comparison, (e.g. wider/narrower; longer/shorter; taller/shorter).*
- *Order three objects of different length/width/ height.*

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- *Understand and use language of comparison between three objects, (e.g. widest/narrowest; longest/shortest; tallest/shortest).*
- *Find an object of similar length, width, height. Understand the concept of the conservation of length, width, height.*
- *Use uniform non-standard units to measure length, width, height.*

Capacity
- *Compare capacity*
- Understand the measurement of volume/capacity (empty/nearly full).
- Compare two of the same container holding different amounts.
- Understand and use language of comparison, (e.g. empty/full, more/ less, most/least)
- Order three of the same container holding different amounts.
- Understand and use the language of comparison of three of the same container holding different amounts (e.g. most/least).
- Understand the concept of conservation of volume/capacity.
- Use uniform non-standard units to measure volume/capacity

Threshold concept		Milestone 2	Milestone 3	Milestone 4
Number –	Number and place value	Year 1 ▪ 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 ▪ read and write numbers from 1 to 20 in numerals and words ▪ 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,	Year 3 ▪ count from 0 in multiples of 4, 8, 50 and 100; ▪ find 10 or 100 more or less than a given number ▪ recognise the place value of each digit in a three-digit number (hundreds, tens, ones) ▪ compare and order numbers up to 1000 ▪ identify, represent and estimate numbers using different representations ▪ read and write numbers up to 1000 in numerals and in words ▪ solve number problems and practical problems involving these ideas	Year 5 ▪ read, write, order and compare numbers to at least 1 000 000 and determine the value of each digit ▪ count forwards or backwards in steps of powers of 10 for any given number up to 1 000 000 ▪ interpret negative numbers in context, count forwards and backwards with positive and negative whole numbers, including through zero ▪ round any number up to 1 000 000 to the nearest 10, 100, 1000, 10 000 and 100 000 ▪ solve number problems and practical problems that involve all of the above

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- use the language of: equal to, more than, less than (fewer), most, least
- **Count within 100, forwards and backwards, starting with any number**
- **Reason about the location of numbers to 20 within the linear number system, including comparing using < > and =**
- **Count forwards and backwards in multiples of 2, 5 and 10, up to 10 multiples, beginning with any multiple, and count forwards and backwards through the odd numbers**

Year 2

- Count in steps of 2, 3, and 5 from 0, and in tens from any number, forward and backward.
- Read and write numbers to at least 100 in numerals and in words.
- 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.

- read Roman numerals from I to XII

Year 4

- count in multiples of 6, 7, 9, 25 and 1000
- find 1000 more or less than a given number
- count backwards through zero to include negative numbers
- recognise the place value of each digit in a four-digit number (thousands, hundreds, tens, and ones)
- order and compare numbers beyond 1000
- identify, represent and estimate numbers using different representations
- round any number to the nearest 10, 100 or 1000
- solve number and practical problems that involve all of the above and with increasingly large positive numbers
- read Roman numerals to 100 (I to C) and know that over time, the numeral system changed to include the concept of zero and place value.
- **Know that 10 hundreds are equivalent to 1 thousand, and that 1,000 is 10 times the size of 100; apply this to identify and**

- read Roman numerals to 1000 (M) and recognise years written in Roman numerals.

Year 6

- read, write, order and compare numbers up to 10 000 000 and determine the value of each digit
- round any whole number to a required degree of accuracy
- use negative numbers in context, and calculate intervals across zero
- solve number and practical problems that involve all of the above
- **Recognise the place value of each digit in numbers up to 10 million, including decimal fractions, and compose and decompose numbers up to 10 million using standard and nonstandard partitioning**
- **Understand the relationship between powers of 10 from 1 hundredth to 10 million, and use this to make a given number 10, 100, 1,000, 1 tenth, 1 hundredth or 1 thousandth times the size (multiply and divide by 10, 100 and 1,000).**
- **Reason about the location of any number up to 10 million, including decimal fractions, in the linear number system, and round numbers, as appropriate, including in contexts**

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			- Compare and order numbers from 0 up to 100; use <, > and = signs. - Use place value and number facts to solve problems. **Recognise the place value of each digit in two-digit numbers, and compose and decompose two-digit numbers using standard and nonstandard partitioning.** **Reason about the location of any twodigit number in the linear number system, including identifying the previous and next multiple of 10.**	- work out how many 100s there are in other four-digit multiples of 100. **Recognise the place value of each digit in four-digit numbers, and compose and decompose four-digit numbers using standard and non-standard partitioning.** **Reason about the location of any four-digit number in the linear number system, including identifying the previous and next multiple of 1,000 and 100, and rounding to the nearest of each.**	
	addition and subtraction	**Year 1** - 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		**Year 3** - add and subtract numbers with up to three digits, using formal written methods of columnar addition and subtraction - add and subtract numbers mentally, including: - a three-digit number and ones - a three-digit number and tens - a three-digit number and hundreds - estimate the answer to a calculation and use inverse operations to check answers	**Year 5** - Apply place-value knowledge to known additive and multiplicative number facts (scaling facts by 1 tenth or 1 hundredth), for example: - add and subtract whole numbers with more than 4 digits, including using formal written methods (columnar addition and subtraction) - add and subtract numbers mentally with increasingly large numbers - use rounding to check answers to calculations and determine, in the

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objects and pictorial representations, and missing number problems such as 7 = – 9.

- **Develop fluency in addition and subtraction facts within 10.**
- **Compose numbers to 10 from 2 parts, and partition numbers to 10 into parts, including recognising odd and even numbers**
- **Read, write and interpret equations containing addition ( ), subtraction ( ) and equals ( ) symbols, and relate additive expressions and equations to real-life contexts.**

Year 2
- solve problems with addition and subtraction
- using concrete objects and pictorial representations, including those involving numbers, quantities and measures
- applying their increasing problem solving knowledge of mental and written methods
- recall and use addition and subtraction facts to 20

- solve problems, including missing number problems, using number facts, place value, and more complex addition and subtraction.
- **Calculate complements to 100, for example:**
- **46+?=100**
- **Add and subtract up to three-digit numbers using columnar methods.**
- **Manipulate the additive relationship: Understand the inverse relationship between addition and subtraction, and how both relate to the part–part–whole structure.**
- **Understand and use the commutative property of addition, and understand the related property for subtraction.**

Year 4
- add and subtract numbers with up to 4 digits using the formal written methods of columnar addition and subtraction where appropriate
- estimate and use inverse operations to check answers to a calculation
- solve addition and subtraction two-step problems in contexts, deciding which operations and methods to use and why.

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context of a problem, levels of accuracy
- solve addition and subtraction multi-step problems in contexts, deciding which operations and methods to use and why.

Year 6
- perform mental calculations, including with mixed operations and large numbers
- identify common factors, common multiples and prime numbers
- use their knowledge of the order of operations to carry out calculations involving the four operations
- solve addition and subtraction multi-step problems in contexts, deciding which operations and methods to use and why
- solve problems involving addition, subtraction, multiplication and division
- use estimation to check answers to calculations and determine, in the context of a problem, an appropriate degree of accuracy.
- **Understand that 2 numbers can be related additively or multiplicatively, and quantify additive and multiplicative relationships (multiplicative relationships restricted to multiplication by a whole number).**
- **Use a given additive or multiplicative calculation to derive or complete a related calculation,**

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.
- **Secure fluency in addition and subtraction facts within 10, through continued practice.**
- **Add and subtract across 10**
- **Recognise the subtraction structure of 'difference' and answer questions of the form, "How many more...?".**
- **Add and subtract within 100 by applying related one digit addition and subtraction facts**

using arithmetic properties, inverse relationships, and place-value understanding.
- Solve problems involving ratio relationships.
- Solve problems with 2 unknowns.

		- Add and subtract within 100 only ones or only tens to/from a two-digit number. - Add and subtract within 100 by applying related one digit addition and subtraction facts - Add and subtract within 100 any 2 two digit numbers.	
	Multiplication and division	**Year 1** - one-step problems involving multiplication and division, by calculating the answer using concrete objects, pictorial representations and arrays with the support of the teacher. **Year 2** - 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 two numbers can be done in any order (commutative)	**Year 3** - recall and use multiplication and division facts for the 3, 4 and 8 multiplication tables - write and calculate mathematical statements for multiplication and division using the multiplication tables that they know, including for two-digit numbers times one-digit numbers, using mental and progressing to formal written methods - solve problems, including missing number problems, involving multiplication and division, including positive integer scaling problems and correspondence problems in which n objects are connected to m objects. **Apply known multiplication and division facts to solve contextual problems with different structures, including quotitive and partitive division.** **Year 4**	**Year 5** - identify multiples and factors, including finding all factor pairs of a number, and common factors of two numbers - know and use the vocabulary of prime numbers, prime factors and composite (nonprime) numbers - establish whether a number up to 100 is prime and recall prime numbers up to 19 - multiply and divide numbers mentally drawing upon known facts - divide numbers up to 4 digits by a one-digit number using the formal written method of short division and interpret remainders appropriately for the context - multiply and divide whole numbers and those involving decimals by 10, 100 and 1000 **Secure fluency in multiplication table facts, and corresponding division facts, through continued practice.**

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- 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.
- **Recognise repeated addition contexts, representing them with multiplication equations and calculating the product, within the 2, 5 and 10 multiplication tables.**
- **Relate grouping problems where the number of groups is unknown to multiplication equations with a missing factor, and to division equations (quotitive division).**
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- use place value, known and derived facts to multiply and divide mentally, including: multiplying by 0 and 1; dividing by 1; multiplying together three numbers
- recognise and use factor pairs and commutativity in mental calculations
- multiply two-digit and three-digit numbers by a one-digit number using formal written layout
- solve problems involving multiplying and adding, including using the distributive law to multiply two digit numbers by one digit, integer scaling problems and harder correspondence problems such as n objects are connected to m objects.
- **Divide 1,000 into 2, 4, 5 and 10 equal parts, and read scales/number lines marked in multiples of 1,000 with 2, 4, 5 and 10 equal parts.**
- **Recall multiplication and division facts up to 12X12 , and recognise products in multiplication tables as multiples of the corresponding number.**
- **Solve division problems, with two-digit dividends and one-digit divisors, that involve remainders, for example:**
- **74 divided by 9 = 8r 2**

- Multiply and divide numbers by 10 and 100; understand this as equivalent to making a number 10 or 100 times the size, or 1 tenth or 1 hundredth times the size.
- Find factors and multiples of positive whole numbers, including common factors and common multiples, and express a given number, as a product of 2 or 3 factors.
- Multiply any whole number with up to 4 digits by any one-digit number using a formal written method including long multiplication for two-digit numbers
- Divide a number with up to 4 digits by a one-digit number using a formal written method, and interpret remainders appropriately for the context.

Year 6

- multiply multi-digit numbers up to 4 digits by a two-digit whole number using the formal written method of long multiplication
- divide numbers up to 4 digits by a two-digit whole number using the formal written method of long division, and interpret remainders as whole number remainders, fractions, or by rounding, as appropriate for the context

			▪ and interpret remainders appropriately according to the context. ▪ Apply place-value knowledge to known additive and multiplicative number facts (scaling facts by 100), for example: ▪ 8 + 6 = 14 and 14 − 6 = 8 so 800 + 600 = 1,400 1,400 − 600 = 800 3 × 4 = 12 and 12 ÷ 4 = 3 so 300 × 4 = 1,200 1,200 ÷ 4 = 300 ▪ ▪ Manipulate multiplication and division equations, and understand and apply the commutative property of multiplication. ▪ Understand and apply the distributive property of multiplication.	• divide numbers up to 4 digits by a two-digit number using the formal written method of short division where appropriate, interpreting remainders according to the context • _perform mental calculations, including with mixed operations and large numbers • identify common factors, common multiples and prime numbers • use their knowledge of the order of operations to carry out calculations involving the four operations • solve addition and subtraction multi-step problems in contexts, deciding which operations and methods to use and why • solve problems involving addition, subtraction, multiplication and division • use estimation to check answers to calculations and determine, in the context of a problem, an appropriate degree of accuracy. ▪ Divide powers of 10, from 1 hundredth to 10 million, into 2, 4, 5 and 10 equal parts, and read scales/number lines with labelled intervals divided into 2, 4, 5 and 10 equal parts. ▪ Understand that 2 numbers can be related additively or multiplicatively, and quantify additive and multiplicative relationships (multiplicative

				relationships restricted to multiplication by a whole number). ▪ Use a given additive or multiplicative calculation to derive or complete a related calculation, using arithmetic properties, inverse relationships, and place-value understanding. ▪ Solve problems involving ratio relationships. ▪ Solve problems with 2 unknowns.
	Fractions	**Year 1** ▪ 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. **Year 2** ▪ 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 $\frac{1}{2}$.	**Year 3** ▪ count and down in tenths; ▪ recognise that tenths arise from dividing an object into 10 equal parts and in dividing one-digit numbers or quantities by 10 ▪ recognise, and write fractions of a discrete set of objects: unit fractions and non-unit fractions with small denominators ▪ recognise and use fractions as numbers: unit fractions and non-unit fractions with small denominators ▪ recognise and show, using diagrams, equivalent fractions with small denominators ▪ Add and subtract fractions with the same denominator within one whole [for example, $$\frac{5}{7} + \frac{1}{7} = \frac{6}{7}$$].	**Year 5** ▪ compare and order fractions whose denominators are all multiples of the same number ▪ identify, name and write equivalent fractions of a given find fraction, represented visually, including tenths and hundredths ▪ recognise mixed numbers and improper fractions and convert from one form to the other and write mathematical statements > 1 as a mixed number [for example, $$\left[\text{for example, } \frac{2}{5} + \frac{4}{5} = \quad \frac{6}{5} = 1\frac{1}{5} \right]$$ ▪ add and subtract fractions with the same denominator and denominators that are multiples of the same number ▪ multiply proper fractions and mixed numbers by whole numbers, supported by materials and diagrams

		- compare and order unit fractions, and fractions with the same denominators - solve problems that involve all the above. **Interpret and write proper fractions to represent 1 or several parts of a whole that is divided into equal parts.** **Find unit fractions of quantities using known division facts (multiplication tables fluency).** **Reason about the location of any fraction within 1 in the linear number system.** **Add and subtract fractions with the same denominator, within 1.** <u>Year 4</u> - recognise and show, using diagrams, families of common equivalent fractions - count up and down in hundredths; recognise that hundredths arise when dividing an object by one hundred and dividing tenths by ten. - solve problems involving increasingly harder fractions to calculate quantities, and fractions to divide quantities, including non-unit fractions where the answer is a whole number - add and subtract fractions with the same denominator	- read and write decimal numbers as fractions [for example, $0.71 = \frac{71}{100}$] - recognise and use thousandths and relate them to tenths, hundredths and decimal equivalents - round decimals with two decimal places to the nearest whole number and to one decimal place - read, write, order and compare numbers with up to three decimal places - solve problems involving number up to three decimal places - recognise the per cent symbol (%) and understand that per cent relates to 'number of parts per hundred', and write percentages as a fraction with denominator 100, and as a decimal - solve problems which require knowing percentage and decimal equivalents of $\frac{1}{2}, \frac{1}{4}, \frac{1}{5}$, $\frac{2}{5}, \frac{4}{5}$ and those fractions with a denominator of a multiple of 10 or 25. **Reason about the location of any number with up to 2 decimals places in the linear number system, including identifying the previous**

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- recognise and write decimal equivalents of any number of tenths or hundredths
- recognise and write decimal equivalents to

$$\frac{1}{4}, \frac{1}{2}, \frac{3}{4}$$

- find the effect of dividing a one- or two-digit number by 10 and 100, identifying the value of the digits in the answer as ones, tenths and hundredths
- Round decimals with one decimal place to the nearest whole number
- compare numbers with the same number of decimal places up to two decimal places
- solve simple measure and money problems involving fractions and decimals to two decimal places.
- **Reason about the location of mixed numbers in the linear number system.**
- **Convert mixed numbers to improper fractions and vice versa.**
- **Add and subtract improper and mixed fractions with the same denominator, including bridging whole numbers, for example:**
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and next multiple of 1 and 0.1 and rounding to the nearest of each.
- **Find non-unit fractions of quantities.**
- **Find equivalent fractions and understand that they have the same value and the same position in the linear number system.**
- **Recall decimal fraction equivalents for 1/2 ,1/4 ,1/5 and 1/10, and for multiples of these proper fractions.**

Year 6
- use common factors to simplify fractions; use common multiples to express fractions in the same denomination
- compare and order fractions, including fractions > 1
- add and subtract fractions with different denominators and mixed numbers, using the concept of equivalent fractions
- multiply simple pairs of proper fractions, writing the answer in its simplest form [for example, 4 1 × 2 1 = 8 1]
- divide proper fractions by whole numbers [for example, 3 1 ÷ 2 = 6 1]
- associate a fraction with division and calculate decimal fraction equivalents [for example, 0.375] for a simple fraction [for example, 8 3]
- identify the value of each digit in numbers given to three decimal

| | | | 8 + 6 = 14 and 14 − 6 = 8
so
800 + 600 = 1,400
1,400 − 600 = 800

3 × 4 = 12 and 12 ÷ 4 = 3
so
300 × 4 = 1,200
1,200 ÷ 4 = 300
▪ | places and multiply and divide numbers by 10, 100 and 1000 giving answers up to three decimal places
▪ multiply one-digit numbers with up to two decimal places by whole numbers
▪ use written division methods in cases where the answer has up to two decimal places
▪ solve problems which require answers to be rounded to specified degrees of accuracy
▪ recall and use equivalences between simple fractions, decimals and percentages, including in different contexts.
▪ **Recognise when fractions can be simplified, and use common factors to simplify fractions.** |
| Geometry | Properties of shapes | **Year 1**
▪ 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]
▪ **Recognise common 2D and 3D shapes presented in different orientations, and know that rectangles, triangles, cuboids and** | **Year 3**
• draw 2-D shapes and make 3-D shapes using modelling materials
• recognise 3-D shapes in different orientations and describe them
• recognise angles as a property of shape or a description of a turn
• identify right angles, recognise that two right angles make a half-turn, three make three quarters of a turn and four a complete turn
• identify whether angles are greater than or less than a right angle | **Year 5**
▪ identify 3-D shapes, including cubes and other cuboids, from 2-D representations
▪ know angles are measured in degrees: estimate and compare acute, obtuse and reflex angles
▪ draw given angles, and measure them in degrees (o)
▪ identify:
▪ angles at a point and one whole turn (total 360o) ⬚ angles at a point on a straight line and 2 1 a turn (total 180o) other multiples of 90o |

		pyramids are not always similar to one another. ▪ Compose 2D and 3D shapes from smaller shapes to match an example, including manipulating shapes to place them in particular orientations. Year 2 ▪ compare and sort common 2-D and 3-D shapes and everyday objects. ▪ 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] ▪ **Use precise language to describe the properties of 2D and 3D shapes, and compare shapes by reasoning about similarities and differences in properties.**	• identify horizontal and vertical lines and pairs of perpendicular and parallel lines. • **Recognise right angles as a property of shape or a description of a turn, and identify right angles in 2D shapes presented in different orientations.** • **Draw polygons by joining marked points, and identify parallel and perpendicular sides** Year 4 • compare and classify geometric shapes, including quadrilaterals and triangles, based on their properties and sizes • identify acute and obtuse angles and compare and order angles up to two right angles by size • identify lines of symmetry in 2-D shapes presented in different orientations • complete a simple symmetric figure with respect to a specific line of symmetry. • Identify regular polygons, including equilateral triangles and squares, as those in which the side-lengths are equal and the angles are equal. Find the perimeter of regular and irregular polygons. • reflect shapes in a line of symmetry and complete a	▪ use the properties of rectangles to deduce related facts and find missing lengths and angles ▪ distinguish between regular and irregular polygons based on reasoning about equal sides and angles. ▪ **Compare angles, estimate and measure angles in degrees (°) and draw angles of a given size** Year 6 ▪ draw 2-D shapes using given dimensions and angles ▪ recognise, describe and build simple 3-D shapes, including making nets ▪ compare and classify geometric shapes based on their properties and sizes ▪ find unknown angles in any triangles, quadrilaterals, and regular polygons ▪ illustrate and name parts of circles, including radius, diameter and circumference and know that the diameter is twice the radius ▪ recognise angles where they meet at a point, are on a straight line, or are vertically opposite, and find missing angles. ▪ **Draw, compose, and decompose shapes according to given properties, including dimensions,**

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			symmetric figure or pattern with respect to a specified line of symmetry	angles and area, and solve related problems.
	Position and direction	**Year 1** ▪ Describe position, direction and movement, including whole, half, quarter and three quarter turns. **Year 2** ▪ 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 anticlockwise).	**Year 3** No content **Year 4** • describe positions on a 2-D grid as coordinates in the first quadrant • describe movements between positions as translations of a given unit to the left/right and up/down • plot specified points and draw sides to complete a given polygon. • **draw polygons, specified by coordinates in the first quadrant** • **translate within the first quadrant.**	**Year 5** ▪ Identify, describe and represent the position of a shape following a reflection or translation, using the appropriate language, and know that the shape has not changed. **Year 6** Describe positions on the full coordinate grid (all four quadrants). • Draw and translate simple shapes on the coordinate plane, and reflect them in the axes.
Measurement		**Year 1** ▪ <u>Measure and begin to record using non standard measures:</u> - lengths and heights, - mass/weight	**Year 3** ▪ measure, compare, add and subtract: lengths (m/cm/mm); mass (kg/g); volume/capacity (l/ml) ▪ measure the perimeter of simple 2-D shapes	**Year 5** ▪ convert between different units of metric measure (for example, kilometre and metre; centimetre and metre; centimetre and millimetre; gram and kilogram; litre and millilitre)

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- capacity and volume
  manageable standard units
- time

  - 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).
  - Recognise and use language
    relating to dates, including
    days of the week, weeks,
    months and years.
  - Sequence events in
    chronological order using
    language (for example,
    before and after, next, first,
    today, yesterday, tomorrow,
    morning, afternoon and
    evening.
  - Tell the time to the hour
    and half past the hour and
    draw the hands on a clock
    face to show these times.
  - Recognise and know the
    value of different

- add and subtract amounts of
  money to give change, using both
  £ and p in practical contexts
- tell and write the time from an
  analogue clock, including using
  Roman numerals from I to XII,
  and 12-hour and 24-hour clocks
- estimate and read time with
  increasing accuracy to the
  nearest minute;
- record and compare time in
  terms of seconds, minutes and
  hours; use vocabulary such as
  o'clock, a.m./p.m., morning,
  afternoon, noon and midnight
- know the number of seconds in
  a minute and the number of days
  in each month, year and leap
  year
- compare durations of events [for
  example to calculate the time
  taken by particular events or
  tasks]

Year 4
- convert between different units
  of measure [for example,
  kilometre to metre; hour to
  minute]
- measure and calculate the
  perimeter of a rectilinear figure
  (including squares) in
  centimetres and metres
- find the area of rectilinear shapes
  by counting squares

- understand and use approximate
  equivalences between metric units
  and common imperial units such as
  inches, pounds and pints
- measure and calculate the
  perimeter of composite rectilinear
  shapes in centimetres and metres
- estimate volume [for example,
  using 1 cm3 blocks to build cuboids
  (including cubes)] and capacity [for
  example, using water]
- solve problems involving
  converting between units of time
- use all four operations to solve
  problems involving measure [for
  example, length, mass, volume,
  money] using decimal notation,
  including scaling.
- **Convert between units of measure,
  including using common decimals
  and fractions.**
- **Compare areas and calculate the
  area of rectangles (including**
  squares) using standard units
  square centimetres (cm2) and
  square metres (m2) and estimate
  the area of irregular shapes

Year 6
- solve problems involving the
  calculation and conversion of units
  of measure, using decimal notation
  up to three decimal places where
  appropriate
- use, read, write and convert
  between standard units, converting

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		denominations of coins and notes. **Year 2** ▪ 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 =	▪ estimate, compare and calculate different measures, including money in pounds and pence ▪ read, write and convert time between analogue and digital 12- and 24-hour clocks ▪ solve problems involving converting from hours to minutes; minutes to seconds; years to months; weeks to days	measurements of length, mass, volume and time from a smaller unit of measure to a larger unit, and vice versa, using decimal notation to up to three decimal places ▪ convert between miles and kilometres ▪ recognise that shapes with the same areas can have different perimeters and vice versa ▪ recognise when it is possible to use formulae for area and volume of shapes ▪ calculate the area of parallelograms and triangles ▪ calculate, estimate and compare volume of cubes and cuboids using standard units, including cubic centimetres (cm3) and cubic metres (m3), and extending to other units [for example, mm3 and km3].
Statistics		**Year 1** ▪**No content** **Year 2** ▪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	**Year 3** ▪ interpret and present data using bar charts, pictograms and tables ▪ solve one-step and two-step questions [for example, 'How many more?' and 'How many fewer?'] using information presented in scaled bar charts and pictograms and tables. **Year 4** ▪ interpret and present discrete and continuous data using	**Year 5** ▪ solve comparison, sum and difference problems using information presented in a line graph ▪ complete, read and interpret information in tables, including timetables. **Year 6**

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			appropriate graphical methods, including bar charts and time graphs. ▪ solve comparison, sum and difference problems using information presented in bar charts, pictograms, tables and other graphs.	▪ interpret and construct pie charts and line graphs and use these to solve problems ▪ calculate and interpret the mean as an average
Ration and Proportion				**Year 6** ▪ solve problems involving the relative sizes of two quantities where missing values can be found by using integer multiplication and division facts ▪ solve problems involving the calculation of percentages [for example, of measures, and such as 15% of 360] and the use of percentages for comparison ▪ solve problems involving similar shapes where the scale factor is known or can be found ▪ solve problems involving unequal sharing and grouping using knowledge of fractions and multiples.
Algebra				**Year 6** ▪ use simple formulae ▪ generate and describe linear number sequences ▪ express missing number problems algebraically ▪ find pairs of numbers that satisfy an equation with two unknowns

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				▪ enumerate possibilities of combinations of two variables.