MATHS
POLICY

INTENT

We aim to send every young person into the world able and qualified to play their full part in it. This means that we want students to develop the skills, knowledge and attributes to thrive and flourish in their school years and beyond.

Our intent is that every pupil leaves our school confident and competent to deal with any mathematical problem they may face in their lives and future careers. This is achieved through promoting pupils to; be resilient in their approach, take risks to deepen their knowledge, forge valuable working relationships and take responsibility for and enjoy their learning. We aim to push pupils to be the best mathematicians by building up their skills base and maximising their attainment and understanding in mathematics at whichever stage that may be.

It is vital that curriculum knowledge and skills are not learnt in isolation. We teach Maths through the progression of skills and knowledge, both of which are planned in a sequential document. Teachers also ensure that lessons are built upon the skills and knowledge of the children, allowing for lessons to be adapted to the needs of the learners.

HOW WE INTEND TO REMOVE BARRIERS

In Maths we remove barriers to learning and support students' ability to access the curriculum through the use of informal and formal assessment. Every lesson is a tool to inform the teacher of progress made, support required and intervention needed for the next lesson.

Barriers may include gaps in subject knowledge, absence from school or misconception and misunderstanding. Teachers remove these barriers by regularly marking work, ensuring each child has chance to 'feedback' to their teacher – orally, written, traffic light assessment.

Teachers may plan for small intervention groups, lasting no more than 20 minutes to work on specific objectives. Teachers also use warm up activities or home learning to support gaps in learning. Lessons are differentiated, where and when necessary, to remove barriers and enable children to access the learning they need. Lessons could be differentiated by support, activity, method and task completion.

LITERACY
Ensuring children access reading and writing opportunities within a maths lesson is a non-negotiable. Children access word problems, mathematical stories and investigations, all of which require children to give their answer or reasoning, orally or written.

As part of our termly assessments, children complete an arithmetic paper and a reasoning paper. The reasoning paper may be read to any child, although we encourage children to underline key terminology and identify what they need to do to complete the problem. Marks are awarded for the answer and the working out. This is reinforced throughout our teaching and children understand the need to explain their method and reasoning.

Children at all levels and stages of learning are exposed to oral and written reasoning and problem solving, alongside regular fluency.

ORACY
In order to develop their oracy within a subject specific context, pupils are given opportunities to talk about their learning. Staff challenge use of mathematical vocabulary and will direct pupils towards the correct terminology, when appropriate. Staff also ensure children are exposed to language used within formal tests and encourage use of new terminology in their own learning. Staff model mathematical language throughout the school day and give children sentence stems and opportunities to use mathematical language across all lessons.

VOCABULARY
Students are introduced to key subject specific vocabulary and have regular opportunities to reinforce their understanding. Key mathematical vocabulary is highlighted to the pupils and pupils are guided to use this in their work.

HOW WE DEVELOP SKILLS FOR LEARNING

Students are given opportunities to develop their skills for learning in each and every lesson. Engaging starter activities help students to recall the key concepts of prior learning, as well as giving children a chance to practice key mathematical skills that children need in everyday life. Children are encouraged to recognise the purpose and use of each mathematical skill within real life and how they can use these skills outside of the classroom.

The skills for learning process within the Maths curriculum both reinforces the key Mathematical skills content and helps our students to know, remember and be able to do more at each stage of the curriculum.

Teacher assessment and formal assessment informs planning and progression within the curriculum. In Y2 and Y6, children complete previous KS1/ KS2 SATS papers at the end of each term to monitor progress and identify gaps in learning. Children in Y1, 3,4, and 5 complete PIRA and PUMA assessments, termly, to inform overall teacher assessment.

HOW WE FOSTER PERSONAL ATTRIBUTES

In Maths, our curriculum intent embodies that of the school. We are committed to ensuring students are exposed to the wider world context in order to develop them as well rounded individuals. Our curriculum demands independence, resilience and responsibility in line with SCHOOL Way. Mathematics encourages perseverance, resilience as well as promoting efficiency and speed. Children are directed to work independently and in teams and often given the choice on how they choose to work. Children use squared books to promote well presented, methodical working out.

HOW WE INTEND TO ENRICH STUDENT EXPERIENCES AND BROADEN THE HORIZONS OF STUDENTS

Mathematics is embedded as part of everyday practise throughout our schools. Children are encouraged to use maths in all 'real life' opportunities. Examples of how we use embed maths to enhance student experiences would be;
- Enterprise events/ School Fayres – budgeting, buying, selling
- PE Lessons – measuring distance, timing sports events.
- Telling the time – Children use analogue and digital clocks around school, use of daily/ weekly timetables.

WICKERSLEY PARTNERSHIP TRUST.

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		YEAR 1	YEAR 2	YEAR 3	YEAR 4	YEAR 5	YEAR 6
NUMBERS AND PLACE VALUE	**Reading and writing numbers**	Read and write numbers from 1 to 20 in numerals and words	Read and write numbers to at least 100 in numerals and in words	Read and write numbers up to 1000 in numerals and in words	Read and write numbers up to 10,000 in numerals and words	Read, write, order and compare numbers to at least 1000 000 and determine the value of each digit	_Can demonstrate an understanding of place value, including large numbers and decimals_ Read, write, order and compare numbers up to 10 000 000 and determine the value of each digit
	Place Value		Recognise the place value of each digit in a two-digit number (tens, ones) _Partition two-digit numbers into different combinations of tens and ones. This may include using apparatus._	Recognise the place value of each digit in a three-digit number (hundreds, tens, ones)	Recognise the place value of each digit in a four-digit number (thousands, hundreds, tens, and ones)		
	Counting	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 different multiples including ones, twos, fives and tens	Count in steps of 2, 3, and 5 from 0, and in tens from any number, forward and backward	Count from 0 in multiples of 4, 8, 50 and 100;	Count backwards through zero to include negative numbers Count in multiples of 6, 7, 9, 25 and 1000	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	Use negative numbers in context, and calculate intervals across zero
	More and less	Given a number, identify one more and one less		Finding 10 or 100 more or less than a given number	Find 1000 more or less than a given number		
	Identify and represent	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	Identify, represent and estimate numbers using different representations, including the number line	Identify, represent and estimate numbers using different representations	Identify, represent and estimate numbers using different representations		
	Comparing, ordering and rounding	Use the language of: equal to, more than, less than (fewer), most and least	Compare and order numbers from 0 up to 100; use <, > and = signs	Compare and order numbers up to 1,000	Order and compare numbers beyond 1,000. Round any number to the nearest 10, 100 or 1,000	Read, write, order and compare numbers to at least 1,000,000. Round any number up to 1,000,000 to the nearest 10, 100, 1000, 10,000 and 100,000	Read, write, order and compare numbers up to 10,000,000. Round any whole number to a required degree of accuracy
	NPV Solving Problems	Use place value and number facts to solve simple problems (1-20)	Use place value and number facts to solve problems	Solve number problems and practical problems involving these ideas.	Solve number and practical problems that involve all of the above and with increasingly large positive numbers	Solve number problems and practical problems that involve all of the above	Solve number problems and practical problems that involve all of the above.
	Numerals				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.	Read Roman numerals to 1000 (M) and recognise years written in Roman numerals.	
ADDITION AND SUBTRACTION SKILLS	**Addition and subtraction mental skills**	Represent and use number bonds and related subtraction facts within 20 Add and subtract one-digit and two-digit numbers to 20, including zero read, write and interpret mathematical statements involving addition (+) and subtraction (-) and equals (=) signs	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 objectives, 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	**Add and subtract numbers mentally where re-grouping is concerned,** including: -a three-digit number and ones -a three-digit number and tens -a three-digit number and hundreds Show that addition of two numbers can be done in any order (commutative) and subtraction of one number from another cannot"		Add and subtract numbers mentally with increasingly large numbers	Perform mental calculations, including with mixed operations and large numbers
	Addition and subtraction written skills	Read, write and interpret mathematical statements involving addition (+) and subtraction (-) and equals (=) signs		Add and subtract numbers with up to three digits, using formal written methods of columnar addition and subtraction	Add and subtract numbers with up to four digits using the formal written methods of columnar addition and subtraction where appropriate	Add and subtract whole numbers with more than 4 digits, including using formal written methods (columnar addition and subtraction)	Add and subtract any whole numbers including those with different amounts of digits. Add and subtract decimals including those with different amounts of digits
ADDITION AND SUBTRACTION USING AND APPLYING	**Estimating / checking / Inverse**		Recognise and use the inverse relationship between addition and subtraction and use this to check calculations and missing number problems	Estimate the answer to a calculation and use inverse operations to check answers	Estimate and use inverse operations to check answers to a calculation	Use rounding to check answers to calculations and determine, in the context of the problem, levels of accuracy	Use estimation to check answers to calculations and determine, in the context of a problem, levels of accuracy

		YEAR 1	YEAR 2	YEAR 3	YEAR 4	YEAR 5	YEAR 6
ADDITION AND SUBTRACTION USING AND APPLYING	**Addition and subtraction Solving Problems**	Solve one-step problems that involve addition and subtraction, using concrete objects and pictorial representations, and missing number problems such as 7 = - 9	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	Solve problems, including missing number problems, using number facts, place value, and more complex addition and subtraction.	Solve addition and subtraction two-step problems in contexts, deciding which operations and methods to use and why.	Solve addition and subtraction multi-step problems in context, deciding which operations and methods to use and why.	Solve addition and subtraction multi-step problems in contexts, deciding which operations and methods to use and why
MULTIPLICATION AND DIVISION	**Multiplication and division mental skills**	Count in multiples of 2s, 5s and 10s	Recall and use multiplication and division facts for the 2, 5 and 10 multiplication tables, including recognising odd and even numbers. Count in steps of 2, 3 and 5, from 0, and in tens from any number, forward or backward Show that multiplication of two numbers can be done in any order (commutative) and division of one number by another cannot	Recall and use multiplication and division facts for the 3, 4 and 8 multiplication tables Count in multiples of 4, 8, 50 and 100 Write and calculate mathematical statements for multiplication and division using the multiplication tables that pupils know, including for two-digit numbers times one-digit numbers, using mental and progressing to formal written methods.	Recall multiplication and division facts for multiplication tables up to 12 × 12 Count in multiples of 6, 7, 9, 25 and 1,000 Recognise and use factor pairs and commutativity in mental calculations 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	Count forwards or backwards in steps of powers of 10 for any given number up to 1,000,000 Multiply and divide numbers mentally drawing upon known facts. Multiply and divide whole numbers and those involving decimals by 10, 100 and 1,000	"Perform mental calculations, including with mixed operations and large numbers. "
	Multiplication and division calculation	Understand that multiplication is same as repeated addition	Calculate mathematical statements for multiplication and division within the multiplication tables and write them using the multiplication (x), division (÷) and equals (=) signs	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	Multiply two-digit and three-digit numbers by a one-digit number using formal written layout	Multiply numbers up to 4 digits by a one- or two-digit number using a formal written method, including long multiplication for two-digit numbers. Multiply and divide whole numbers and those involving decimals by 10, 100 and 1000. 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 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.
	Properties of numbers, multiples, factors, primes, square and cube numbers.				Recognise and use factor pairs and commutativity in mental calculations	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 (non-prime) numbers. Establish whether a number up to 100 is prime and recall prime numbers up to 19. Recognise and use square numbers and cube numbers and the notation for squared (^{2}) and cubed (^3). Recognise and use square numbers and cube numbers, and the notation for squared and cubed	Identify common factors, common multiples and prime numbers
MULTIPLICATION AND DIVISION PROBLEM SOLVING		Practically share and group. 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.	Solve problems involving multiplication and division, using materials, arrays, repeated addition, mental methods, and multiplication and division facts, including problems in contexts. Solve simple one-step problems involving multiplication and division, by calculating the answer using concrete objects, pictorial representations and arrays with the support of the teacher. **Recall and use multiplication and division facts for 2,5 and 10 to solve problems, demonstrating an understanding of commutativity as necessary. Solve unfamiliar word problems that involve more than one step (e.g. 'which has the most biscuits, 4 packets of biscuits with 5 in each packet or 3 packets of biscuits with 10 in each packet?')**	Solve problems, including missing number problems, involving multiplication and division, including integer scaling problems and correspondence problems in which n objects are connected to m objects	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	Solve problems involving multiplication and division including using their knowledge of factors and multiples, squares and cubes. Solve problems involving addition, subtraction, multiplication and division and a combination of these, including understanding the meaning of the equals sign. Solve problems involving multiplication and division, including scaling by simple fractions and problems involving simple rates.	Use their knowledge of the order of operations to carry out calculations involving the four operations. Use estimation to check answers to calculations and determine, in the context of a problem, levels of accuracy. Solve problems involving addition, subtraction, multiplication and division.

		YEAR 1	YEAR 2	YEAR 3	YEAR 4	YEAR 5	YEAR 6
FRACTIONS, DECIMALS AND PROPORTION	**Recognise, find, write, use**	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.	**Can identify 1/3,1/4, 1/2, 2/4,3/4 and know that all parts must be equal parts of the whole** Recognise, find, name and write fractions 1/3, 1/4, 2/4 and 3/4 of a length, shape, set of objects or quantity Write simple fractions e.g. 1/2 of 6 = 3 and recognise the equivalence of 2/4 and 1/2.	Recognise, find and write fractions of a discrete set of objects: unit fractions and non-unit fractions with small denominators. Count up 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 show, using diagrams, equivalent fractions with small denominators. Recognise and use fractions as numbers: unit fractions and non-unit fractions with small denominators.	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 a hundred and dividing tenths by ten.	Recognise mixed numbers and improper fractions and convert from one form to the other and write mathematical statements >1 as a mixed number. Identify , name and write equivalent fractions of a given fraction, represented visually, including tenths and hundredths. 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 hundred, and as a decimal.	Use common factors to simplify fractions; use common multiples to express fractions in the same denomination.
	Add / Subtract	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.	Add and subtract simple fractions with the same denominator.	Add and subtract fractions with the same denominator within one whole (e.g.5/7 + 1/7 =6/7) Compare and order unit fractions, and fractions with the same denominators.	Add and subtract fractions with the same denominator.	Add and subtract fractions with the same denominator and denominators that are multiples of the same number. Compare and order fractions whose denominators are all multiples of the same number.	**Calculate using fractions, decimals and percentages** Add and subtract fractions with different denominators and mixed numbers, using the concept of equivalent fractions Compare and order fractions, including fractions >1.
	Comparing fractions and decimals			Compare and order unit fractions, and fractions with the same denominators.	Compare numbers with the same number of decimal places up to two decimal places.	Compare and order fractions whose denominators are all multiples of the same number. Compare numbers with up to three decimal places.	**Recognise the relationship between fractions, decimals and percentages and can express them as equivalent quantities.** Compare and order fractions, including fractions >1
	Multiply and Divide Fractions					Multiply proper fractions and mixed numbers by whole numbers, supported by materials and diagrams	**Calculate using fractions, decimals and percentages.** Multiply simple pairs of proper fractions, writing the answer in its simplest form Divide proper fractions by whole numbers. 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. Associate a fraction with division to calculate decimal fraction equivalents (e.g. 0.375) for a simple fraction (e.g. 3/8)
	Recognise, find, compare and round decimals	Recognise coins and use the language of money	Recognise and use symbols for pounds and pence. Combine amounts to make an amount. **Use different coins to make the same amount.**	Write money in £ and pence. Multiply a whole number by 10 or 100	Recognise and write decimal equivalents of any number of tenths or hundredths. Recognise and write decimal equivalents to 1/4; 1/2; 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.	Read and write decimal numbers as fractions Recognise and use thousandths and relate them to tenths, hundredths and decimal equivalents Read, write, order with up to three decimal places.	Recall and use equivalences between simple fractions, decimals and percentages, including in different contexts. Identify the value of each digit in numbers given to three decimal places and multiply and divide numbers by 10, 100 and 1000 giving answers up to three decimal places.
	Rounding decimals				Round decimals with one decimal place to the nearest whole number	Round decimals with two decimal places to the nearest whole number and to one decimal place	
	Problem Solving fractions and decimals	Role play paying money	Solve simple problems involving money	Solve problems which involve all of the above	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. Solve simple measure and money problems involving fractions and decimals to two decimal places	Solve problems which require knowing percentage and decimal equivalents of 1/2, 1/4, 1/5, 2/5, 4/5 and those with a denominator of a multiple of 10 or 25	Solve problems which require answers to be rounded to specified degrees of accuracy. 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(e.g. of measures) 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 known knowledge of fractions and multiples"

		YEAR 1	YEAR 2	YEAR 3	YEAR 4	YEAR 5	YEAR 6
	Measure and calculate	Measure and begin to record the following: lengths and heights mass/weight capacity and volume time (hours, minutes, seconds)	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 **Use scales in divisions of ones, twos, fives and tens in a practical situation where all numbers on a scale given**	Measure, compare, add and subtract: lengths (m/cm/mm); mass (kg/g); volume/capacity (l/ml) Measure the perimeter of simple 2-D shapes	Measure and calculate the perimeter of a rectilinear figure (including squares) in cm and m. Estimate, compare and calculate different measures.	Estimate the area of irregular shapes Estimate volume(e,g,. using 1cm^3 blocks to build cuboids (including cubes) and capacity (e.g. using water). Measure and calculate the perimeter of composite rectilinear shapes in centimetres and metres. Calculate and compare the area of rectangles(including squares) and including using standard units, square centimetres (cm^2) and square metres (m^2)	**Can calculate with measures** Calculate the area of parallelograms and triangles Calculate, estimate and compare volumes of cubes and cuboids using standard units, including cubic centimetres cm ^{3}) and cubic metres (m^3) and extending to other units such as mm^{3}and km^3 **Can substitute values into a formula to solve problems (e.g perimeter of rectangle or area of triangle)**
	Compare and convert	Compare, describe and solve practical problems for: lengths and heights (e.g. long/short, longer/ shorter, tall/short, double/half) mass/weight (e.g. heavy/light, heavier than, lighter than) capacity and volume (full/empty, more than, less than, half,half full, quarter) time (quicker, slower, earlier, later)	Compare and order lengths, mass, volume/capacity and record the results using >, < and =	Know how many cm in a m, m in a km, mins in an hour etc (measurement equivalence)	Convert between different units of measure (e.g. kilometre to metre; hour to minute) Find the area of rectilinear shapes by counting squares	Convert between different units of measure (e.g. kilometre and metre; centimetre and metre; centimetre and millimetre; gram and kilogram; litre and millilitre). Understand and use approximate equivalences between metric units and common imperial units such as inches, pounds and pints **Use knowledge of arrays to find area**	Use, read, write and convert between standard units, converting 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
	Problem Solving measures					Use all four operations to solve problems involving measure (e.g. length, mass, volume, money) using decimal notation, including scaling	Solve problems involving the calculation and conversion of units of measure, using decimal notation up to three decimal places where appropriate. Recognise that shapes with the same areas can have different perimeters and vice versa. Recognise when it is possible to use formula for area and volume of shapes
	Money	Recognise and know the value of different denominations of coins and notes	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.	Add and subtract amounts of money to give change, using both £ and p in practical contexts	Estimate, compare and calculate different measures, including money in pounds and pence	Use all four operations to solve problems involving measure (e.g. length, mass, volume, money) using decimal notation, including scaling	Use all 4 operations to solve multi-step problems involving money
	Time	Sequence events in chronological order using language (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	Compare and sequence intervals of time **Can read the time on the clock to the nearest 15 minutes** 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	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, hours and; use vocabulary such as 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	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	Solve problems involving converting between units of time	Read and interpret timetables Solve problems about time intervals
GEOMETRY	**Shapes**	Recognise and name common 2D and 3D shapes, including: 2D shapes (e.g. rectangles (including squares), circles and triangles) 3D shapes (e.g. cuboids (including cubes), pyramids and spheres)	**Identify and describe the properties of 2D shapes,** including the number of sides and line symmetry in a vertical line. **Identify and describe the properties of 3D shapes,** including the number of edges, vertices and faces. Identify 2-D shapes on the surface of 3D shapes, for example a circle on a cylinder and a triangle on a pyramid. Compare and sort common 2D and 3D shapes and everyday objects.	Draw 2D shapes and make 3D shapes using modelling materials; recognise 3D shapes in different orientations and describe them	Compare and classify geometric shapes, including quadrilaterals and triangles, based on their properties and sizes	Identify 3D shapes, including cubes and other cuboids, from 2D representations 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 angle	Draw 2D shapes using given dimensions and angles. Recognise, describe and build simple 3D shapes, including making nets. Compare and classify geometric shapes based on their properties and sizes and 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

		YEAR 1	YEAR 2	YEAR 3	YEAR 4	YEAR 5	YEAR 6
GEOMETRY	**Angles and lines**	Recognise reflective symmetry.	Complete reflective patterns.	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 Identify horizontal, vertical lines and pairs of perpendicular and parallel lines.	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	Draw given angles, and measure them in degrees (^{0}). Know that angles are measures in degrees identify -angles at a point and one whole turn (total 360^0) -angles at a point on a straight line and ½ a turn (total 180^0) -other multiples of 90^0	**Can use mathematical reasoning to find missing angles** Recognise angles where they meet at a point, are on a straight line, or are vertically opposite, and find missing angles.
	Position	Describe position, direction and movement, including whole,half, quarter and three-quarter turns.	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),	Describe position in a space on a grid using co-ordinates in letters or numbers. Describe a movement from a to b.	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.	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.	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.
STATISTICS, ALGEBRA AND RATIO	**Statistics**	Construct and interpret simple pictograms.	Interpret and construct simple pictograms, tally charts, block diagrams and simple tables Ask and answer simple questions by counting the number of objects in each category and sorting the categories by quantity Ask and answer questions about totalling and compare categorical data.	Interpret and present data using bar charts, pictograms and tables Solve one-step and two-step questions such as 'How many more?' And 'How many fewer?' Using information presented in scaled bar charts and pictograms and tables.	Interpret and present discrete and continuous data using 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.	Solve comparison, sum and difference problems using information presented in a line graph. Complete, read and interpret information in tables, including timetables.	Interpret pie charts and line graphs and use these to solve problems. Construct pie charts and line graphs and use these to solve problems. Calculate and interpret the mean as an average.
	Algebra						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. Enumerate possibilities of combinations of two variables.
	Ratio						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.