Maths
Curriculum Rationale

Year	Term	Rationale	Prior Knowledge/ Connections
Early Years	**N/A**	A high focus on number sense will begin to 5 before progressing through to 10 and 20. Temporal, symmetrical and growing patterns will be explored. Describing 2d and 3d shapes will enable key mathematical vocabulary. Many concepts will be covered through Play 2 Learn in preparation for year 1. **See curriculum overview for clear outline of all aspects taught during the year.**	
Year 1	**Autumn 1**	**Topic: Number and Place Value, Measurement** To consolidate a basic understanding of number, children in Y1 will beginning the year by focusing on number and place value to 20. Children will read and write numbers to 1-20 in numerals and in words. They will manipulate numbers through revisiting numbers to 20 regularly. Children will count to and across 100, forwards and backwards beginning with 0 or 1 from any number.	Children will have progressed from Early Years where they have focused on numbers to 20. They will have developed patterns between numbers and have some basic understanding of doubling and halving.
	Autumn 2	**Topic: Number and Place Value, Measurement** Children will develop their vocabulary by learning key measurement words in context (longer/shorter., double/half etc). Placing this unit after place value means children can use these words linked to real life contexts and in word problems. Introducing further language relating to time mean this can be discussed in reference to birthdays throughout the year. Further links will be made to the application of money.	Through Play to Learn activities and guided work, key vocabulary will support children when using concrete apparatus.
	Spring 1	**Topic: Properties of shape, Addition and Subtraction, Measurement** Children will focus more on mathematical symbols of add, subtract and equals. Representation through number bonds to 20 will build upon work to 10. Using	Use of rekenreks through daily work focusing on number to 10 through subitising and numbers bonds to 10 work will enable children to build upon this.

Maths
Curriculum Rationale

Year	Term	Rationale	Prior Knowledge/ Connections
		concrete apparatus children will become more familiar with adding and subtracting one and two digit numbers and explaining this process.	
	Spring 2	**Topic: Properties of shape, Addition and Subtraction, Measurement** This topic will enable children to recognise common 2d and 3d shape names and explore these in the environment and real life contexts. After place value in Autumn Term, children will use their understanding of tens and ones to support with adding and subtracting within 20. Children will continue to build upon their knowledge of measurements through practical activities. They will have a sound understanding of number (taught earlier in the year) meaning they can apply this to reading measures through weight, mass and volume. A further deepen of mathematical language linked to all measures (see Curriculum Overview) can take place at this stage.	Shape hunts and shapes in the environment will have been completed as well as discussions around what they can see and how they feel. Key terminology outlined in Curriculum overview introduced. Through many opportunities of Play 2 Learn in Early Years, children will have developed vocabulary linked to measurement. Language of size, weight, capacity, position, distance and time covered during Early Years. Comparison between lengths and weights will be built on further.
	Summer 1	**Topic: Multiplication and Division, fractions, Geometry, Measures** Teaching multiplication and division in the Summer Term builds logically on the mathematical understanding that pupils have developed through Place Value to 20 in the Autumn Term and Addition and Subtraction within 20 in the Spring Term. Teaching multiplication and division after addition and subtraction allows pupils to make important connections between mathematical operations. They can draw on their knowledge of counting, number bonds and repeated addition to understand multiplication, while their experience of subtraction supports the concept of division as grouping and finding how many groups can	In Early Years, children are exposed to early multiplicative thinking through everyday play and exploration. They have shared resources equally between friends, grouped objects into sets when sorting, created repeating patterns and combined to make equal groups of objects in construction and small-world play. These informal experiences help children develop an intuitive understanding of concepts such as equal groups, sharing, grouping and repeated quantities before formal mathematical language is introduced.

Maths
Curriculum Rationale

Year	Term	Rationale	Prior Knowledge/ Connections
		be made. This sequencing promotes mathematical fluency and helps children recognise relationships between different areas of mathematics.	
	Summer 2	**Topic: Multiplication and division, Fractions, Geometry** Building on positional language learnt in Early Years, children will look at whole, half, quarter and three-quarter turns. They will recognise, find and name a half as one of two equal parts in objects, shapes and quantities. They will also apply these fraction facts to telling the time on an analogue clock to the hour and half past the hour.	Further consolidation and exploration of mathematical positional language will take place. The idea of comparing quantities through objects will continue.
Year 2	**Autumn 1**	**Topic: Number and Place Value, Addition and Subtraction, Measurement, Statistics** Starting with number and place value means consolidation can be made which ensures children have a grasp of basic numbers. This ensures from an early stage children can put these into word problems.	Children have become competent at ordering numbers 1-20 in order and can identify numbers one more or less Children will have a solid understanding of numbers to 50. They will be able to count forwards and backwards through 100. Children will have a good understanding of vocabulary linked to measures. They will recognise the value of different notes and coins.
	Autumn 2	**Topic: Number and Place Value, Measurement, Statistics, Addition and Subtraction** Children will recall addition and subtractions facts top twenty and use these to derive new facts to 100. Children will develop their understanding of Commutativity and the impact of this on subtraction. Further into the term, add and subtract concrete, pictoral and mentally.	Children will have developed a range of vocabulary linked to measurement including words for sequences of events.
	Spring 1	**Topic: Money, Multiplication & Division, Statistics** Children will focus on the importance of the commutative law and how this applies to division. Furthering Children will become more familiar with money and vocabulary surrounding this. Using real life contest, they	Children will have discussed, held and described different coins. Role play of use of money through Play to Learn in previous years.

Maths
Curriculum Rationale

Year	Term	Rationale	Prior Knowledge/ Connections
		will find different combinations that equal the same amount through concrete apparatus. More confidence will come through problem solving including use of change.	
	Spring 2	**Topic: Money, Multiplication and division, Statistics** Children will now put number and place value knowledge and number facts into tally chart and pictograms problems. Children will compare data and focus on the different ways this can be presented.	**Children will have prior knowledge of counting objects and linking these to charts and diagrams.**
	Summer 1	**Topic: Time, Fractions, Geometry** This topic will further children's ability to read and tell the time including to the hour, half, quarter past and quarter to. Children will use concrete apparatus to show time and draw on hands of clock faces.	Daily discussions around the time and uses of the clock. Children will have discussed time linked to birthdays, days of week, months of year, and including time vocabulary of yesterday, tomorrow, next week.
	Summer 2	**Topic: Time, Fractions, Geometry** This topic will develop children's mathematical vocabulary to describe position, rotation, movement, including turns used to describe clocks.	Children will have compared and sorted common objects by properties and described volume in shapes using words including full , empty.
Year 3	**Autumn 1**	**Topic: Number and Place Value, Addition and Subtraction, Measurement, Statistics** Early on in Y3 children progress to recognise the place value columns including hundreds, tens, ones. This means manipulation of these numbers can take place through ordering and comparing numbers. Ensuring a solid understanding of place value means children can interpret and present data in bar charts from an early stage. Children will continue to progress through the learning of times tables of the 3s, 4s & 8s.	Children have used a range of representations to make numbers to 100 and beyond. They have manipulated these numbers, looking at bridging and number representation. Times tables of 2s, 5s and 10s will have been taught previously.
	Autumn 2	**Topic: Number and Place Value, Addition and Subtraction, Measurement, Statistics**	Children will previously have looked at adding and subtracting two digit numbers using abstract and concrete

Maths
Curriculum Rationale

Year	Term	Rationale	Prior Knowledge/ Connections
		Since developing their understanding of numbers with three digits, children will then use column addition and subtraction for accurate calculations. This will lead into consolidation of these areas by checking answers through inverse calculations. Solid understanding of place value will allow for units of measurement to be introduced.	apparatus. Some work around bridging over 10 will have been completed.
	Spring 1	**Topic: Multiplication and Division, Time, Money, Statistics** A focus on recalling times table facts for 3,4 & 8 tables. Patterns between these numbers means children can build on prior knowledge. Learning these times tables at this points fit in with order of S plans and NC. A series of lessons will focus on pictograms using times table knowledge once embedded. This will lead to missing number word problems and integer scaling.	Children will a deep understanding of the 2s, 5s and 10 times table through rigorous practice throughout Y2. Good level of knowledge of arrays linked to times table learnt.
	Spring 2	**Topic: Multiplication and Division, Time, Money, Statistics** A focus on recalling times table facts for 3,4 & 8 tables. Patterns between these numbers means children can build on prior knowledge. Once a sound understanding of number is consolidated, comparisons between time, durations of events and key time facts can be explored. A continuation of Roman Numerals can be taught through analogue clocks.	Children will a deep understanding of the 2s, 5s and 10 times table through rigorous practice throughout Y2.
	Summer 1	**Topic: Fractions, Geometry** With children able to count in tens, tenths and hundredths can now be introduced. Adding and subtracting same denominator fractions can be taught as children will know to find, read and write fractions. Towards the end of the unit, a comparison between	Children will be able to recognise and write simple fractions and will build on some equivalence.

Maths
Curriculum Rationale

Year	Term	Rationale	Prior Knowledge/ Connections
		fractions with same and different denominators can take place.	
	Summer 2	**Topic: Fractions, Geometry** As children have a good understanding of 2d and 3d shapes, children will have the opportunity to make these using modelling materials which will support mathematical vocabulary. This will then lead as an opportunity to identify right angles, half turns, angles which are more and less than 90 degrees.	2d and 3d shapes and key vocabulary have been covered widely in year 2 including handling, comparisons, and descriptions.
Year 4	**Autumn 1**	**Topic: Number and Place Value, Addition and Subtraction, Statistics** Starting with recapping Roman Numerals ensures the concept of zero can be revisited and writing of the date in maths books will further consolidate this objective. This will consolidate the counting back through zero. Counting in number sequences, ordering and comparing numbers at this stage over 1,000 will build on knowledge in year 3 and ensure more complex questions can be asked later on in the year.	A brief understanding of Roman Numeral numbers will have been covered in Y3 particularly when children have used this as part of their date in their books.
	Autumn 2	**Topic: Number and Place Value, Addition and Subtraction, Statistics** Column method of four-digit numbers will be used following formal written method outlined in calculation policy. Consolidation through inverse to check answers will follow this. This will then enable interpretation and present data in charts to test knowledge and skills taught.	Mental addition and subtraction strategies from counting on and back, tens, compensation, partitioning will also be drawn upon during this stage. Expanded method of addition and subtraction focused upon in year 3 with the use of concrete apparatus.
	Spring 1	**Topic: Multiplication and division, Fractions** Times table knowledge will support counting on in multiples and spotting patterns in sequences. Further	Deep understanding of times tables including 3, 4, 8s will be secure.

Maths
Curriculum Rationale

Year	Term	Rationale	Prior Knowledge/ Connections
		written methods of multiplying to and three-digit numbers supporting from previously learnt column methods. Solving problems involving the distribution law will now be able to be explored.	
	Spring 2	**Topic: Multiplication and division, Fractions** Children will now find the effect of dividing one- or two-digit numbers by 10 and 100 giving tenths and hundredths. They will recognise decimal equivalents of halves, quarters while rounding one decimal place to whole numbers.	Children in year 3 counted and down in tenths and know that dividing an object by 10 gives 10 equal parts. Concrete apparatus will have supported fractions for reading and writing these.
	Summer 1	**Topic: Geometry, Time, Measures** Children will develop knowledge of shape through lines of symmetry, comparing shapes, identifying angles, types of lines and revisiting area and perimeter of shapes.	Secure understanding of 2d and 3d shape names and properties including some angle and perimeter work.
	Summer 2	**Topic: Geometry, Time, Measures** Descriptions of 2d co ordinates will follow on from shape work to encourage deeper thinking of polygons on grids. Analogue and digital clocks will be focused on to read and convert time between both. This will then enable time problems to be introduced converting time.	Key vocabulary will be secure linked to time. Showing time using concrete apparatus to the nearest minute on both analogue and digital clocks will provide prior knowledge.
Year 5	**Autumn 1**	**Topic: Number and Place Value, Addition and Subtraction, Statistics** Ensuring a solid foundation of number and place value is taught early on as Y5 expectation to 1,000,000 and beyond. A heavy focus on identifying correct value through practical and abstract work. A continuation of Roman Numeral work to 1,000 through word problems. Questioning of number and place value problems will draw out in depth explanations.	Place value to 1,000 has been taught rigorously including ordering, comparing, rounding, finding 1,000 more or less and adding and subtracting using written methods. Roman numerals to 100 taught in Y4.

Maths
Curriculum Rationale

Year	Term	Rationale	Prior Knowledge/ Connections
	Autumn 2	**Topic: Number and Place Value, Addition and Subtraction, Statistics** A good understanding of numbers to a million is in place, adding and subtracting more than 4 numbers can begin. Following method set out in calculation policy, addition and subtraction can be taught. Missing number problems and explanation tasks will consolidate this method. Once consolidated, sum and difference problems linked to information in tables and graphs can be focused upon.	Expanded method of addition and subtraction has been shown. Children can demonstrate this using concrete apparatus and talk through the process. Rounding implementation in year 4 means children can use to estimate questions with accuracy. Different strategies to add and subtract mentally from using number bonds, compensate, adding tens, partitioning, number sequences will also be drawn upon during this topic.
	Spring 1	**Topic: Multiplication and Division, Fractions** Children will further expand their written methods to include multiplication and division including remainders which children will have seen with smaller numbers previously. Focusing on decimals and multiplying and dividing in powers of 10 will be taught during this stage. Factor pairs and common factors will be found while a solid understanding of number means prime and composite numbers can be investigated. Square and cube numbers introduced and problems involving these will be covered.	Knowledge of times tables ready for learning around indices and factor pairs means children should already have some understanding with the terminology. Prior practice of learning number strategies will support the learning of formal written method for multiplication and division. Conversion between different units of measurement taught in year 4 will have prepared children for when progressing further with powers of 10, 100 and 1000.
	Spring 2	**Topic: Multiplication and Division, Fractions** Addition and subtraction is secure therefore fractions with same and different denominators can now be introduced. Equivalent fractions knowledge will need to be secure. Identifying and writing fractions including tenths and hundredths will be focused upon.	Common fractions of halves, quarters, tenths will have been taught with links to time. Comparison of fractions will have been introduced.
	Summer 1	**Topic: Fractions, Geometry, Measures, Time** Consolidation of fractions earlier in the year means further application of this can now be applied. Relating	Linking fractions and decimas to money will have been consolidated. Children will be able to draw diagrams to show fractions while adding and subtracting with the same denominators.

Maths
Curriculum Rationale

Year	Term	Rationale	Prior Knowledge/ Connections
		fractions to decimals can now support in children in solving problems to three decimal places. Introduction of percentage links to usage of fractions and decimals and supports comparisons of these.	
	Summer 2	**Topic: Fractions, Geometry, Measures, Time** Drawing given angles will begin in this stage as children will have knowledge of types of angles. Children will now start to describe, identify, and represent a shape following a reflection and translation. Secure knowledge of 2d shapes will be needed for this. Been able to read and tell the time to nearest 1 minute now enables children to read, interpret time information through timetables and units of time problems.	Different types of angles will have been covered in year 4 through estimating and comparison. Children have plotted specific points on a coordinate grid and used this to draw regular polygons. They have also described movements between positions through translations. Children have prior knowledge of reading, writing and converting time between 12 hour and 24 hour digital and analogue clock from year 4. Children have also solved problems converting different units of time.
Year 6	**Autumn 1**	**Topic: Number and Place Value, Four Operations, Statistics** Children will build on prior knowledge of numbers up to 1 million and now read, write, compare and order numbers up to 10,000,000. They will consolidate their ability to round numbers including decimals. Here is an opportunity for children to construct line graphs using different scales including decimals. There will be opportunity to describe positions of shapes on four quadrant coordinate grids.	Children should be confident with Roman Numerals to 1000 and have manipulated numbers up to 1,000,000. Children have rounded numbers up to 1,000,000 to the nearest 10,100,1000,10000 & 100,000. Children have previously looked at negative numbers going through zero in Y5.
	Autumn 2	**Topic: Number and Place Value, Four Operations, Statistics** Children will further develop mental calculations including mixed operations of large numbers. Children will recap common factors, multiples and prime numbers. Children will progress from dividing by 1 whole number to learning methods for dividing by 2 whole numbers (long division).	Children should have a good understanding of mental calculations as well as secure understanding of formal written methods (addition, subtraction, multiplication, division). Children can use rounding to check answers are appropriate.

Maths
Curriculum Rationale

Year	Term	Rationale	Prior Knowledge/ Connections
	Spring 1	**Topic: Algebra, Fractions, Measurement** Secure knowledge of times tables means children can find common factors to simply fractions. All unit and non unit fractions will have been studied meaning comparing fractions can also be successfully taught at this stage. Multiplication and division of fractions will be introduced during this stage. Associating decimals and fractions to hundredths value can be introduced. Once fraction facts are secure, application of this through different units of metric measurements can be introduced.	Reading, writing, adding, subtracting fractions has all previously been taught. Equivalent fractions will also be in children's long term memory alongside knowledge of tenths and hundredths.
	Spring 2	**Topic: Algebra, Fractions, Measurement** Introduction of simple formulae will be explicitly taught, generation and describing linear number sequences will build on times tables facts. Finding pairs of numbers to satisfy equations comes after number and place value to ensure this is secure and in long term memory.	Although terminology of algebra will not have been discussed before, children will have been exposed to missing number problems and challenges which require different numbers to complete combinations.
	Summer 1	**Topic: Statistics, Geometry, Ratio and Proportion** Having a sound understanding of number this can be utilised in measurements problems requiring area and perimeter knowledge. This will then extend to volume. All content of KS2 curriculum will be taught before SATs.	Children will be consolidating their whole learning taught throughout KS2. Methods to find area and perimeter will be embedded from previous year groups. Reading 4 quadrant grids will already be secure as well as identifying 2d shapes and reflecting these.
	Summer 2	**Topic: Statistics, Geometry, Ratio and Proportion** Children will be using knowledge with more practical problems from concepts previously taught. These include recognising shapes with the same area can have different perimeters, calculating the area of parallelograms and triangles and translating shapes using	Children will be consolidating their whole learning taught throughout KS2. Methods to find area and perimeter will be embedded from previous year groups. Reading 4 quadrant grids will already be secure as well as identifying 2d shapes and reflecting these.

Maths
Curriculum Rationale

Year	Term	Rationale	Prior Knowledge/ Connections
		coordinates. Formulae will be practised to recognise area and volume of shapes.	