The Christ Church, Walshaw Mathematics Curriculum

Our Mathematics Intent
At Christ Church, all children are encouraged to believe that by working hard at mathematics they can all succeed. Pupils are taught through whole-class interactive teaching, where the focus is on all pupils working together on the same lesson content at the same time. This ensures that all can master concepts before moving to the next part of the curriculum sequence, allowing no pupil to be left behind. There are five key or 'Big Ideas' : Representations and Structure, Mathematical thinking, Fluency and Facts, Variation, and Coherence. If a pupil fails to grasp a concept or procedure, this is identified quickly and same day intervention ensures the pupil is ready to move forward with the whole class in the next lesson.
Our Mathematics Implementation
At Christ Church, our love of mathematics begins in EYFS. The Early Years Team uses the Development Matters document alongside the Early Learning Goals to carefully plan exciting opportunities for the children to explore mathematics in a mixture of explicit maths lessons and continuous provision. From Year 1 to Year 6, our core delivery of the National Curriculum is through the Maths No Problem mastery approach. We deliver daily maths lessons that engage and motivate all learners. Our maths lessons are broken down into six parts that are approximately 10 minutes each: Flashback, In Focus, Let's Learn, Guided Practice, Independent Work and Journaling. Teachers regularly assess the children's understanding and progress and plan subsequent lessons according to the needs of the children. We may plan additional lessons if we feel that children need to consolidate a concept and we have access to other resources such as White Rose to help us do this. The children are introduced to new concepts using the concrete, pictorial, abstract (CPA) approach. We strive to make our mathematics lessons fun and relevant to real life so that children see a link with what they learn in school with the wider world. Teachers follow our bespoke Maths Calculation Policy (see separate document) which shows clear progression in the methods for all four operations from Nursery through to Year 6. We also have a Progression of Vocabulary document from R-Y6, which informs teachers of new vocabulary to introduce in each topic, as well as vocabulary that has been taught before and vocabulary in future year groups.
Christ Church Mathematicians will ...
Have a love of mathematics Talk confidently about their learning Apply their learning to real life situations Have a positive, 'can do' attitude Be confident in all areas of the National Curriculum Be resilient

Nursery

The Christ Church, Walshaw Mathematics Curriculum

Term	Knowledge and skills
Autumn	**Baseline** **Number and Number Patterns** To recite numbers up to 5 To show finger numbers up to 5 To begin to link numerals and amounts To begin to solve real world mathematical problems with numbers to 3 To talk about and identify the patterns around them e.g. wrapping paper To notice, and correct, an error in a repeating pattern **Space, Shape and Measure** To talk about and explore 2D shapes To begin to make comparisons between objects relating to size and length
Spring	**Number and Number Patterns** To say one number for each item in order: 1, 2, 3, 4, 5 (1:1 correspondence) Begin to know that the last number reached is how many in total (cardinal number) To experiment with their own symbols and marks as well as numerals To extend and create ABAB patterns Begin to describe a sequence of events using words such as first, next, then **Space, Shape and Measure** To talk about and explore 3D shapes To select shapes appropriately to build with To understand position through words alone- e.g the boy in behind the door Begin to describe a familiar route
Summer	**Number and Number Patterns** To recite numbers beyond 5 To link numerals and amounts to 5 and beyond To solve real world mathematical problems with numbers up to 5 To compare quantities using language: More than, fewer than To develop fast recognition of up to 5 objects without having to count (subertising) To revisit exploration of number in a variety of ways e.g. tally/numicon/amounts **Space, Shape and Measure**

	To discuss routes and locations using words like 'in front of' and 'behind' To combine shapes to make new ones

Reception	
Term	Knowledge and skills
Autumn	**Number and Number Patterns** To match and sort a variety of objects e.g. compare bears and numicon To compare amounts To represent and compare numbers 1, 2 and 3 To understand the composition of 1, 2 and 3 To represent numbers to 5 To know one more and one less than digits to 5 **Space, Shape and Measure** To compare size, mass and capacity To explore pattern To explore the properties of circles and triangles To use positional language To explore shapes with 4 sides To use the language of time
Spring	**Number and Number Patterns** To understand zero To compare numbers to 5 To understand the composition of 4 and 5 To understand digits 6, 7 and 8 To make pairs To combine two groups To understand digits 9 and 10 To compare numbers to 10 To learn number bonds to 10

	Space, Shape and Measure To compare mass To compare capacity To explore length and height To explore time To name and describe 3D shapes To explore pattern
Summer	**Number and Number Patterns** To explore numbers above 10 To count patterns beyond 10 To explore addition to 10 To explore subtraction numbers to 10 To double numbers To explore sharing and grouping To understand odds and evens To have a deepening understanding of patterns and relationships **Spatial Reasoning** To match, rotate and manipulate To compose and decompose To visualise and build To explore mapping

Year 1 – Autumn Term
Knowledge and skills
Number – Place Value Numbers to 10: To be able to count numbers to 10 accurately – forward and backward. To be able to count similar objects up to 10 with accuracy and fluency. To be able to write all numbers to 10 with numerals and in words; to count only objects of the same name in a group.

To be able to understand what zero represents and use it when counting.
To be able to compare different sets of objects and say which one has fewer, more or is equal.
To be able to order numbers to 10 and know which number is greater or is lesser in value.
To compare numbers using the terms '1 more' and '1 less'.

Number - Number bonds:

To understand that a number is made up of other numbers; to find as many ways possible to construct a number.
To use number bonds for storytelling.

Number - Addition within 10:

To be able to add two different numbers within 10.
To add by counting on.
To complete number sentences and gain an understanding of inverse operations.
To be able to make addition stories using correct vocabulary.
To be able to solve addition problems through pictures

Number - Subtraction within 10:

To be able to understand that subtraction can be done by crossing out or taking away.
To be able to subtract using number bonds.
To be able to solve a subtraction sentence by counting back, using a number line as support
To be able to make subtraction stories and represent them in subtraction sentences.
To be able to solve picture problems involving subtraction.
To be able to solve problems in the context of addition and subtraction and to find the corresponding number families.
To consolidate the learning of subtraction number sentences and subtraction fact families.

Geometry - Positions:

To learn the appropriate positional language (ordinal numbers) for up to 10 positions.
To be able to name the positions in a queue.
To be able to name positions, including left and right.

Number – Place Value Numbers to 20:

To be able to count numbers up to 20 using the key strategy to begin by making 10.
To be able to recognise, read and write numbers up to 20 in words and numerals.
To be able to use the terms 'greater than' or 'less than' to compare numbers within 20.
To be able to arrange numbers up to 20 in ascending and descending order.
To be able to look for patterns with numbers up to 20, focusing on one more and one less than a number.

Number - Addition and Subtraction within 20:

To learn to add by counting on from the largest number.
To add to numbers by first making 10 and then adding on the remainder.
To add by separating the ones and ten. This enables pupils to add the sum of the ones to the ten.
To learn how to subtract by counting back from the largest number.
To learn how to subtract by subtracting from only the ones column.
To subtract a certain amount of ones from 10 rather than from the ones, as there are not enough ones.
To go through number facts derived from addition and subtraction sentences.

Year 1 – Spring Term

Knowledge and skills

Geometry - Shapes and Patterns:
To recognise four basic 3D solid shapes: spheres, cubes, cuboids and pyramids.
To recognise 2D shapes in the everyday environment.
To be able to group shapes using different criteria.
To make patterns using common 2D shapes.
Measurement - Length and Height:
To compare height and length by using key terminology.
To be able to measure objects using other items, such as pencils or books.
To be able to measure items using other things - parts of the body in particular.
To introduce the concept of using rulers for measuring.
Number – Place Value Numbers to 40:
To use the making 10 strategy to count numbers above 10; to represent numbers on a number line.
To use the ten-frame method of organisation and place-value cards to assist pupils in writing numbers to 40; to encourage multiple ways of counting, including counting by 2, 5 and 10.
To understand that digits represent tens and ones; to represent numbers using Base 10 materials and numbers.
To use place value to compare two or three numbers and determine which number is bigger/smaller; to arrange three numbers in order of size.
To compare numbers using number bonds, 100-squares and number lines to determine how much more/less.
To observe and use number patterns; to see number lines in conjunction with number squares in order to create visual proportionality.
Number - Addition and Subtraction Word Problems:
To decide whether addition or subtraction is the most appropriate operation; to use and apply number bonds and visual representations to solve word problems.

To use and apply concepts of how many more and how many fewer/less; to apply number bonds and the guess-and-check method to solve word problems.
To develop number sentences based on word problems; to improve the use of number bonds and one-to-one bar model representations to suit the question.
To use pictorial representations to help solve word problems; to choose the correct operation to solve a word problem.
To use visual representations and patterns to solve word problems; to develop precision in model drawing to recognise similarities and differences.
To apply addition and subtraction to multi-step word problems; to use number bonds to make 10 when adding.

Number - Multiplication:

To be able to identify equal groupings as the first step in multiplying; to be able to reinforce the idea that the arrangement of objects does not have an impact on the number of objects.
To be able to understand that we can count groups of the same quantity more efficiently; to be able to find multiple ways of counting groups of the same quantity.
To be able to organise objects into equal rows in order to begin counting equal numbers efficiently.
To be able to understand that doubling is creating an identical number to the one you started with and that doubling is the same as saying two groups of the same amount.
To solve word problems using equal groupings as the basis for multiplication.

Number - Division:

To be able to understand how to divide even numbers into equal groups using concrete materials; to be able to determine how many groups will be created from sharing equally.
To be able to understand how to divide even numbers equally into groups; to be able to determine how many objects will be included in each group in order to share equally.

Year 1 – Summer Term

Knowledge and skills

Number - Fractions:

To split an object (shape) into two equal parts; to identify shapes that have been split into two equal parts.
To split an object (shape) into four equal parts; to identify shapes that have been split into four equal parts.
To share and group objects into halves and quarters; to determine half of a number and a quarter of a number.

Number – Place Value Numbers to 100:

To be able to count in sequences of 10 followed by counting ones; to be able to increase confidence with number lines and Base 10 materials in order to count numbers to 100.
To be able to understand the value of the tens and ones digits in a number; to be able to use multiple methods of representing and constructing a number.
To be able to review and extend skills and strategies related to number comparison; to be able to place numbers in order from smallest to greatest and vice versa.
To be able to see patterns of numbers when increasing or decreasing by 1, 2 or 5; to be able to use a number line, a 100-chart and Base 10 materials to represent numbers.

Measurement - Time:

To develop familiarity with the analogue clock, including the minute and hour hands; to tell time to the hour on an analogue clock.
To improve familiarity with the analogue clock; to tell time to the half hour using the term 'half past.'
To sequence events in order of time; to use the terms 'next', 'before' and 'after' to describe the order of events.
To estimate an amount of time using seconds, minutes and hours.
To use the terms 'quicker', 'slower', 'earlier' and 'later' when comparing time.
To learn the days of the week and the months of the year and to be able to put them in the correct order.

Measurement - Money:

To recognise coins and determine their value using size, colour, markings and shape.
To recognise notes and determine their value using colour and markings.

Measurement - Volume and Capacity:

To compare volume and capacity using the terms 'more than' and 'less than', 'full' and 'empty'.
To find the volume and capacity of a container using non-standard ones.
To describe volume using the terms 'half' and 'quarter'.

Measurement - Mass:

To compare the mass of objects using the terms 'heavy' and 'light', 'heavier than', 'lighter than' and 'as heavy as'.
To find the mass of an object using non-standard ones; to use visualisation skills to estimate the number of ones.

Geometry - Space:

To describe the position of objects in relation to one another using varied vocabulary.
To describe movements of objects using varied language.
To understand how to make turns using mathematical language and connect this knowledge to time.

Year 2 – Autumn Term

Knowledge and skills
Number – Place Value Numbers to 100: To count numbers up to 100 using concrete objects: counting up by ones and tens. To understand each digit in a number has its own value. To be able to compare numbers using place-value knowledge gained from previous lessons. To use the number bond strategy to deepen understanding of place value. To count in ones and tens; to introduce boundary crossing using tens and ones. To recognise and describe patterns with more complex numbers, in particular 3 and 5. **Number - Addition and Subtraction:** To be able to add a 1-digit number to a 2-digit number without regrouping the ones. To add tens by recognising its relationship to adding ones. To add 2-digit numbers where one is a multiple of 10. To add with tens and ones where the ones are both more than zero. To add 1-digit numbers to a 2-digit number resulting in renaming of ones. To add two 2-digit numbers where renaming is expected. To subtract ones from a 2-digit number. To subtract 2-digit multiples of 10 from 2-digit multiples of 10. To subtract tens from a 2-digit number with the ones being more than zero. To subtract a 2-digit number by another 2-digit number. To subtract within 100 by applying related 1-digit addition and subtraction facts. To subtract a 2-digit number by a 1-digit number with renaming. To subtract a 2-digit number by another 2-digit number where renaming has to occur. To add three 1-digit numbers. **Number - Multiplication of 2,5 and 10:** To realise that multiplication is the same as repeated addition with equal groups. To focus on understanding and learning the 2 times table. To use concrete materials and pictorial representations to multiply by 2. To cover the basics of the 5 times table and to highlight multiplication visually as equal groups. To recall and use the 5 times table. To introduce the 10 times table by focusing on the numbers found in the 10 times table. To look at the 10 times table in more detail by looking at patterns and relationships. To investigate links between the 2, 5 and 10 times tables. To understand commutative law.

To use knowledge of the 2, 5 and 10 times tables to further investigate commutative law.
To use the 2, 5 and 10 times tables to solve word problems.

Number - Multiplication and Division of 2, 5 and 10:

To understand that grouping is a way of dividing.
To be able to divide by sharing an amount.
To be able to divide by 2. The two strategies used here are splitting into groups of x and splitting into equal groups of many.
To be able to divide by 5 and identify links with multiplying by 5.
To be able to divide by 10 and identify links with multiplying by 10.
To use multiplication and division skills to identify family facts in a number sentence.
To understand and solve word problems which require the use of the multiplication and division skills covered in this chapter.
To be able to link whether odd or even numbers can be divisible by 2, 5 or 10

Measurement - Length:

To measure length in metres.
To measure length in centimetres.
To be able to compare length for objects using 'greater than' and 'less than' symbols.
To be able to compare different lengths using centimetres as the unit of measure.
To be able to compare and measure various line lengths: both straight and curvy.
To be able to solve problems involving measurement in the context of word problems.
To be able to solve addition and multiplication word problems involving measurement.
To be able to solve addition and division word problems involving measurement.

Measurement - Mass:

To be able to measure mass in kilograms.
To be able to measure mass in grams.
To be able to measure mass accurately in grams using weighing scales.
To be able to compare the mass of two different objects accurately.
To be able to compare the mass of three objects and use the appropriate vocabulary.
To solve word problems in the context of mass.
To solve word problems involving mass.

Measurement - Temperature:

To be able to accurately read temperature in Celsius.
To be able to estimate temperature and to read thermometers to confirm the estimate.

Year 2 – Spring Term
Knowledge and skills
Statistics - Pictograms: To be able to read a picture graph with confidence. To be able to read and interpret a picture graph with confidence. To be able to read and interpret a picture graph where the value of the picture can represent more than 1. To be able to read and interpret a picture graph where the value of the picture can represent more than 1. To be able to read, interpret and create a picture graph where the value of the picture can represent more than 1. **Measurement - Money:** To identify standard UK coins and notes and write their names. To count notes in sequences of 5 and 10; to recognise the value of notes by appearance. To count coins in sequences of their value; to recognise the value of coins by appearance. To represent amounts of money using coins and notes; to count coins and notes using their denominations. To create equal amounts of money using different coins. To exchange denominations of money for different coins. To compare different amounts of money using coins. To add money together to determine the total amount. To calculate change from £100 or less; to use the bar model approach to represent amounts of money. **Geometry - 2D shapes:** To identify the number of sides on basic 2-D shapes. To identify and count the vertices in regular polygons. To identify lines of symmetry in basic 2-D shapes. To construct shapes using pattern blocks that have lines of symmetry. To sort shapes based on number of sides, vertices and other factors. To draw shapes using square grid and dot grid paper; to copy shapes from sight using grid paper. To recognise patterns of familiar shapes and colours of up to three objects. To describe patterns using ordinal numbers and shape names. To turn objects using quarter, half and three-quarter turns both clockwise and anticlockwise on a square grid. **Geometry - 3D Shapes:** To recognise 3-D shapes by identifying their properties. To describe 3-D shapes and classify them using faces, vertices and edges. To describe 3-D shapes based on the number of faces and the 2-D shapes of these faces; to construct nets of shapes into 3-D shapes.

To group 3-D shapes by similar properties.
To form 3-D structures using multiple 3-D objects.
To make and recognise patterns using 3-D shapes

Measurement - Time:

To tell and write time to 5-minute intervals.
To tell time to 5-minute intervals and to the hour.
To sequence events of the day by looking at analogue clocks and pictures.
To draw hands on an analogue clock to show the correct time.
To find the duration of time using an analogue clock in 30- and 60-minute intervals.
To find the duration of time to 5-minute intervals.
To find the ending of a duration of time from different 5-minute starting points.
To find the ending time in intervals of 5 minutes from delayed starts.
To find the starting time from 30-minute and 1-hour interval durations.
To find the start of multiple durations of time using a common end time.
To compare durations of time from the least amount to the most amount of time and vice versa.

Number - Fractions:

To make equal parts from a whole using simple and complex methods.
To show and recognise halves and quarters.
To show and identify more than one quarter using materials and pictures.
To show and identify thirds in shapes; to use the vocabulary 'numerator' and 'denominator' when referring to fractions.
To identify and name fractions by looking at the number of pieces and how many are shaded in.
To recognise equivalent fractions in quarters, thirds and halves.
To compare and order similar fractions by looking at the size of the pieces shaded.
To compare and order fractions with different denominators.
To count the number of wholes and parts to form mixed numbers.
To count in halves and place halves onto a number line using pictures.
To count in quarters and place quarters onto a number line using pictures.
To count in thirds and place thirds onto a number line using pictures.
To find fractions (half) of whole numbers.
To find a fraction (third) of a whole number.
To find a fraction (quarter) of a number.
To find a fraction (half, third, quarter) of a quantity (length).

Year 2 – Summer Term
Knowledge and skills
Fractions continued (this is started in Spring Term – see objectives listed) **Time spent revising key concepts and learning before SATs.** **SATs** **Number - More Word Problems:** To decide when it is appropriate to add and/or subtract when solving word problems; to improve the use of bar modelling and decision making based on visual representations. To use the bar model method to solve word problems looking at the difference between two amounts. To solve multi-step word problems using bar modelling; to use more than one bar model in a problem to work out the answer. To use bar modelling to solve multi-step word problems involving unknown quantities. **Measurement - Volume:** To compare volume in different-sized containers using the terms 'greater than,' 'less than,' 'greatest' and 'least.' To compare the volume of different containers using non-standard units. To measure volume using litres and determine whether an amount is 'more than,' 'less than' or 'equal to' a litre. To measure volume using millilitres and litres; to determine how many ml there are in 1 l. To solve word problems involving bar models with litres as the standard unit. To solve word problems using ml and l, including problems involving difference. To solve word problems involving volume and multiplication.

Year 3 – Autumn Term
Knowledge and skills
Number – Place value Numbers to 1000: To learn to count in hundreds and understand the place value. Pupils will also understand how many hundreds are needed to make 1000. To compose and decompose numbers consisting of hundreds, tens and ones. To understand the value of each digit in a 3-digit number.

To be able to compare and order numbers.
To be able to count in fifties.
To recognise, describe and continue a number pattern.
To be able to recognise, describe and complete more complicated number patterns.
To be able to count in fours and eights.

Number - Addition and Subtraction:

To understand the commutative law of addition and the corresponding addition and subtraction facts.
To add a 3-digit number to a 1-digit number with no regrouping or renaming.
To add a 3-digit number to a multiple of 10 (2-digit number) without regrouping or renaming.
To add multiples of 100 to a 3-digit number. without regrouping or renaming.
To add two 3-digit numbers without regrouping or renaming; introduction of the column method of addition.
To add a 3-digit number to a 1-digit number, with renaming.
To add with renaming in tens.
To add two 3-digit numbers with renaming the ones.
To add two 3-digit numbers with renaming the tens.
To add with renaming in ones and tens.
To do simple subtraction by taking away a 1-digit number from a 2-digit number without renaming.
To do simple subtraction by taking away a 1-digit number from a 3-digit number without renaming.
To subtract multiples of 10, up to 90, from a 3-digit number.
To subtract hundreds from a 3-digit number and to subtract multiples of 1 and 10 from a 3-digit number.
To understand simple subtraction of a 3-digit number by another 3-digit number using the column method.
To subtract with renaming in tens and ones.
subtract with renaming hundreds.
To subtract with regrouping tens and hundreds.
To subtract a 3-digit number with zeros.
To solve addition and subtraction problems using the bar model.
To use the bar model to solve problems.

Number - Multiplication and Division:

To multiply by 3.
To multiply by 3 using relational properties.
To multiply by 4.
To multiply by 4.

To multiply by 4 and 8. To multiply by 8; to use commutative law to multiply. To multiply by 8. To divide by 3. To divide by 4. To find relationships between multiplication and division. To divide by 4 and 8. To solve word problems with multiplication. To solve word problems that involve division. To solve more word problems involving multiplication and division using the bar model. To solve problems using a variety of strategies. To multiply multiples of 10 by a 1-digit number. To multiply any 2-digit number by a 1-digit number. To multiply more 2-digit numbers. To multiply with regrouping. To multiply with regrouping. To understand simple division of a 2-digit number by a 1-digit number. To divide where there is a need to regroup. To use long division to divide. To solve word problems that involve multiplication. To solve word problems involving division. To solve more challenging word problems.

Year 3 – Spring Term
Knowledge and skills
Measurement - Length: To use metres and centimetres to measure objects. To write length in centimetres only by converting metres to centimetres. To convert kilometres to metres. To convert length from metres to kilometres and metres. To compare two lengths.

To solve measurement-related word problems.
To solve other word problems.
To solve word problems further, involving multiplication.
To solve word problems associated with length using division.
To solve more challenging word problems.

Measurement – Mass:

To measure mass using weighing scales and compare the mass of objects using grams and kilograms.
To use weighing scales to measure mass when the mass is between multiples of 100 g.
To read values on a scale which are 1 kg or more.
To weigh heavier items where the markers in the scales represent 200 g each.
To solve word problems relating to mass with addition and subtraction.
To solve word problems relating to mass using multiplication.
To solve word problems relating to mass using division.

Measurement – Volume:

To measure volume in millilitres.
To measure capacity in millilitres.
To measure volume using millilitres and litres.
To measure volume in millilitres and litres from a 'homemade' bottle with markings.
To measure volume using millilitres and litres in comparison to 1 l.
To measure larger capacity in litres and millilitres.
To solve basic word problems related to volume.
To solve more word problems.
To solve word problems through division.
To solve two-step word problems

Measurement - Money:

To consolidate previous learning about denominations of both notes and coins; to use simple addition to count amounts of money.
To name amounts of money including coins above 100p; to regroup and rename 100p as £1 as a key strategy.
To find multiple ways of showing an amount of money.
To add money by adding together the pounds and pence separately.
To add amounts of money together using different methods; to consolidate the addition of pounds and pence separately.
To consolidate 'making a pound' as a strategy for adding amounts of money where the coins equal more than 99p.
To learn the 'make a pound' strategy with number bond diagrams; to consolidate the strategies associated with the addition of money.

To use multiple methods for subtracting amounts of money, including concrete materials and the column method.
To use visual comparison to subtract amounts of money; to consolidate column subtraction where there is no regrouping of pence required.
To use number bonds to subtract amounts of money; to develop number sense through decision making.
To use number bonds as the primary strategy for subtracting amounts of money; to split pounds and pence simultaneously when subtracting amounts of money.
To learn the 'counting on' strategy for calculating change; to consolidate the number bonds strategy for calculating change.
To solve word problems involving money using bar modelling as the key strategy; to learn how to use comparative models where pupils are solving by seeing the smaller amount inside of the larger amount.
To use part-whole bar models to represent word problems; to apply addition and subtraction strategies to solve word problems.

Measurement - Time:

To use the terms 'a.m.' and 'p.m.' correctly to identify morning or afternoon/evening.
To learn to tell time to the minute; to understand the relationship between the minute hand and hour hand.
To consolidate and apply a variety of vocabulary used to express the time.
To compare analogue and digital time; to represent time using both analogue and digital methods.
To tell time before the hour using the hour and minute hands.
To learn to tell time using 24-hour notation; to use analogue time and 24-hour notation interchangeably.
To tell the time on an analogue clock using Roman numerals.
To measure time in seconds and milliseconds.
To measure time in seconds using a stopwatch; to consolidate previous learning about seconds.
To consolidate measuring time in seconds; to conduct a time experiment using seconds.
To measure time in hours using an analogue clock.
To consolidate the measurement of time in hours.
To measure time in hours using analogue clocks and timelines; to count backwards in time by the hour.
To measure the passage of time in minutes using an analogue clock and a timeline.
To measure time to the minute when it crosses into the next hour; to use number bonds to calculate the passage of time.
To measure time in minutes, counting backwards to determine the starting point; to use number bonds and timelines to calculate the passage of time.
To determine how many seconds are in a minute; to use multiplication to calculate the number of seconds in a number of minutes.
To convert seconds into minutes using number bonds.
To calculate the number of days in a month; to learn which months have 31, 30 and 28/29 days.
find the duration of days for different activities.

Year 3 – Summer Term
Knowledge and skills
Number - Fractions: To count in tenths; to recognise tenths and be able to determine how many tenths are shaded. To make number pairs to create 1; to combine fractions to make 1. To add fractions with the same denominator. To consolidate adding fractions with the same name; to learn how fractions can add to 1. To subtract fractions with the same name. To find equivalent fractions through paper folding and shading. To find equivalent fractions using paper folding and shading. To find equivalent fractions; to place fractions on a number line. To find fractions equivalent to 1/2; to use pictorial representations and multiplication to show equivalence. To find equivalent fractions using concrete objects and pictorial representations. To find equivalent fractions using pictorial representations and multiplication. To find the simplest fraction using visualisation and concrete materials. To find the simplest fraction using pictorial representations and division. To find equivalent fractions using multiplication and division; to determine whether or not a fraction is equivalent. To compare the fractions ½ and ¼ using pictorial representations and concrete materials. To compare fractions using pictorial representations; to understand the numerical nature of the numerator. To compare fractions with different names (denominators) using pictorial representations and number lines. To add fractions using pictorial representations; to simplify fractions after adding them. To subtract fractions using pictorial representations; to simplify fractions after they have been subtracted. To subtract fractions from a whole amount; to use pictorial representations of whole numbers to help subtract fractions. To determine a fraction of a whole number using pictorial representations. To find a fraction of a whole number using pictorial representations, multiplication and concrete objects. To consolidate finding the fraction of a whole number. To divide 1 between more than 1; to share 1 whole equally between more than 1. To share more than 1 using pictorial representations and division. To share more than 1; to recognise a whole and its parts using pictures and number lines. To show more than 1 whole after sharing a number of items equally; to use pictorial representations to share whole items equally. To apply bar modelling to represent fractions in word problems; to solve word problems using pictorial representations and abstract methods. To use bar models to solve word problems involving the fraction ½.

To use bar models to solve word problems involving the fractions 1/3 and 1/5.

Geometry – Angles:

To learn what makes an angle and identify angles in objects.
To see angles on the inside and outside of objects; to find angles in letters.
To find angles in shapes; to determine the relationship between the number of angles in a shape and the number of sides.
To find right angles in everyday objects; to understand what makes a right angle.
To compare angles using the terms 'right' angle and 'acute' angle; to identify acute angles as smaller angles than right angles.
To identify right angles and acute angles; to recognise and define an obtuse angle.
To make turns using angles vocabulary; to align the language of angles and fractions to describe turns.

Geometry – Lines and Shapes:

To identify, define and create perpendicular lines; to find perpendicular lines in everyday objects.
To identify, define and create parallel lines; to find parallel lines in everyday objects.
To define and identify vertical and horizontal lines; to find vertical and horizontal lines in everyday life.
To describe 2-D shapes using familiar vocabulary about lines and angles.
To draw 2-D shapes in proportion to their size; to identify how big a shape is.
To create 3-D shapes out of nets; to use vocabulary related to 3-D shapes and their properties.
To construct 3-D shapes out of clay and discuss their properties.
To describe 3-D shapes using familiar terms; to identify properties of 3-D shapes.

Measurement – Perimeter:

To determine the perimeter of basic shapes; to use grid paper to measure the perimeter of a shape.
To measure the perimeter of a shape using 1 cm grid paper.
To determine the perimeter of different shapes; to create shapes with a specific perimeter.
To find the perimeter of shapes using 2 cm grids; to identify mistakes in others' work.
To calculate the perimeter of a shape using a ruler to measure the side lengths.
To calculate the perimeter of a rectangle using multiplication and addition.
To calculate the perimeter of a square using addition and multiplication; to calculate the perimeter of rectangles and irregular shapes by adding up the length of each side.
To consolidate learning about perimeter using practical word problems; to calculate the perimeter of a rectangle using properties of shapes.
To calculate the perimeter of a square and a rectangle using information previously learned about the properties of shapes.
To calculate the perimeter of a rectangle when a square piece has been removed; to determine the lengths of sides that are not marked based on information about the piece removed.

Statistics – Pictograms and Bar Graphs:

To construct picture graphs from a set of data; to present data with pictures that represent more than one item. To construct bar graphs from a set of data; to use proportion to reflect precise difference in quantity. To read and interpret information from a bar graph; to use and understand vocabulary related to bar graphs. To read bar graphs where the scale is not a multiple of all quantities measured. To read bar graphs where the scale is made up of larger increments.

Year 4 – Autumn Term
Knowledge and skills
Number – Place Value Numbers to 10,000: To count in hundreds and twenty-fives. To count in thousands. To count in thousands, hundreds, tens and ones. To use an understanding of place value to count. To understand place value in a 4-digit number. To compare and order numbers. To compare and order 4-digit numbers. To make number patterns (100, 10, 1 more and less). To make number patterns (4-digit numbers). To count in sixes, sevens and nines. To round numbers to the nearest 1000. To round numbers to the nearest 10, 100 and 1000. To round numbers to estimate. To round numbers to estimate. **Number - Addition and Subtraction:** To find totals and sums. To add without renaming. To add with renaming (in the ones column). To add with renaming (in tens and ones). To add with renaming (in hundreds, tens and ones). To add using mental strategies (making tens, hundreds and thousands). To add using mental strategies.

To find the difference.
To subtract without renaming (column subtraction).
To subtract with renaming (in tens and ones).
To subtract with renaming (in hundreds, tens and ones).
To subtract with renaming (in hundreds, tens and ones).
To subtract with renaming.
To subtract using mental strategies.
To solve addition and subtraction word problems.
To solve word problems (addition and subtraction).
To solve multi-step word problems.

Number – Multiplication and Division:

To multiply by 6.
To multiply by 7.
To multiply by 9.
To multiply by 9 (relational understanding).
To multiply by 11.
To multiply by 11.
To multiply by 12.
To divide by 6.
To divide by 7.
To divide by 9.
To multiply and divide by 11 and 12.
To divide with remainders.
To solve word problems involving multiplication and division.
To solve problems involving multiplication and division.
To solve multi-step problems (in the context of measures).
To solve problems involving multiplication and division (all possibilities).
To solve problems involving multiplication and division (multi-step).
To solve problems involving multiplication and division (scaling/comparison).
To multiply by 0 and 1.
To divide by 1.
To understand commutativity.

To multiply three numbers.
To multiply with multiples of 10.
To multiply 2-digit numbers.
To multiply 2-digit numbers with renaming.
To multiply multiples of 100.
To multiply 3-digit numbers.
To multiply 3-digit numbers (renaming).
To multiply 3-digit numbers.
To divide 2-digit numbers.
To divide 3-digit numbers.
To divide 2-digit numbers with remainders.
To divide 3-digit numbers.
To divide 3-digit numbers with remainders.
To solve multiplication and division word problems.
To solve multiplication and division word problems (multi-step).

Year 4 – Spring Term
Knowledge and skills
Statistics – Graphs: To draw and read picture graphs and bar graphs. To draw and read bar graphs. To draw and read line graphs. To draw and read a line graph. To draw and read line graphs (drawing focus). **Measurement – Time:** To tell the time on a 24-hour clock. To convert between minutes and seconds. To convert between hours and minutes. To solve time problems. To convert between units of time. To solve word problems (duration).

Number – Fractions:
To count in hundredths.
To write mixed number fractions.
To show mixed number fractions on a number line.
To find equivalent fractions.
To find equivalent fractions (further practise).
To simplify mixed number fractions.
To simplify improper fractions.
To add fractions.
To add fractions (recording answers as a mixed number).
To add fractions (simplest form).
To subtract fractions.
To subtract fractions (equivalence).
To solve word problems

Number – Decimals:
To record tenths.
To record in tenths.
To record in tenths (in different ways).
To write hundredths.
To write hundredths.
To write hundredths (in different ways).
To record hundredths.
To write decimal numbers.
To compare and order decimal numbers.
To compare and order decimal numbers.
To compare and order decimal numbers.
To create number sequences.
To round decimal numbers.
To round decimal numbers.
To write fractions as decimal numbers.
To divide whole numbers by 10.
To divide whole numbers by 100.

Measurement – Money: To record amounts of money. To record amounts of money. To compare total amounts of money. To round to the nearest pound (whole number). To solve money problems (addition and subtraction). To solve money problems (multiplication). To solve money problems (comparison). To estimate amounts of money

Year 4 – Summer Term
Knowledge and skills
Measurement – Mass, Volume and Length: To measure mass. To measure mass. To convert units of mass. To measure volume. To measure volume. To convert units of volume. To measure height. To measure length. To convert units of length. To convert units of length. To measure perimeter in centimetres and millimetres. To solve problems in measurement (reading scales). **Measurement – Area:** To find area (by measuring surface coverage). To measure area. To measure area (counting squares). To measure area (counting squares and half squares). To measure area (using multiplication).

To measure area (shapes in different orientations).
Geometry – Properties of Shape:
To identify types of angles.
To compare angles.
To classify triangles.
To classify quadrilaterals.
To identify symmetrical figures.
To draw lines of symmetry.
To draw symmetrical figures.
To make symmetrical figures.
To complete symmetrical figures.
To sort shapes.
Geometry – Position and Movement and Coordinates:
To describe position.
To describe position.
To plot coordinates.
To describe movements.
To describe movements (coordinates).
Number – Roman Numerals:
To write Roman numerals (to 20).
To write Roman numerals to 100.

Year 5 – Autumn Term
Knowledge and skills
Number – Place Value Numbers to 100,000: To read and represent numbers to 100 000. To read and represent numbers to 1 000 000. To read and represent numbers to 1 000 000 using number discs. To compare numbers to 1 000 000 using place value. To compare numbers to 1 000 000 using place value. To compare numbers to 1 000 000 using pictorial representations and proportionality.

To compare numbers to 1 000 000 from pictorial representations, using lists and number lines.
To make and identify patterns in numbers using knowledge of place value.
To make number patterns that decrease in multiples of 10 000 or 100 000.
To round numbers to the nearest 10 000 using number lines and bar graphs.
To round numbers to the nearest 100 000 using number lines and bar graphs.
To round numbers to the nearest 100, 1000, 10 000 and 100 000 using number lines.

Number - Addition and Subtraction:

To add using the 'counting on' strategy with concrete materials and number lines.
To subtract using the 'counting backwards' strategy with concrete materials.
To add numbers within 1 000 000 using rounding and concrete materials.
To use addition and subtraction to solve comparison problems with numbers to 1 000 000.
To add numbers within 1 000 000 using the column method of addition.
To subtract using the column method, number bonds and number discs using numbers to 1 000 000.
To add and subtract using number bonds as a key strategy using numbers within 1 000 000.
To consolidate and refine addition skills and place-value knowledge to solve addition problems.
To subtract numbers to 1 000 000 using concrete materials, the column method and number bonds.
To consolidate and refine subtraction skills and place-value knowledge to solve subtraction problems.
To consolidate and refine subtraction skills and place-value knowledge to solve subtraction problems.

Number – Multiplication and Division:

To consolidate and review multiplication; to find the result of multiplying by a number.
To consolidate and review multiplication; to find the numbers we can multiply by to get a number.
To define and find common factors of numbers to 100.
To identify and name the prime numbers; to recognise prime numbers as numbers that only have 2 factors.
To define and determine prime numbers to 100.
To create and determine square and cubed numbers.
To multiply 1- and 2-digit numbers by 10, 100 and 1000.
To multiply 2- and 3-digit numbers by a 1-digit number using multiple strategies.
To multiply 4-digit numbers by 1-digit numbers.
To multiply 4-digit numbers by 1-digit numbers with regrouping, using a variety of strategies.
To multiply a 4-digit number by a 1-digit number, with regrouping from the ones, tens and hundreds, using multiple methods.
To multiply 2-digit numbers by 2-digit numbers using multiple methods.

To multiply a 2-digit number by a 2-digit number using multiple methods, including the grid method, number bonds and column method, with regrouping.
To multiply a 3-digit number by a 2-digit number, with the grid method and column method as key strategies.
To multiply a 3-digit number by a 2-digit number with regrouping, using the column method as the key strategy.
To find thousands, hundreds and tens in a 4-digit number using concrete materials.
To divide 3- and 4-digit numbers by 1-digit numbers, using number bonds and long division as the key methods.
To divide 4-digit numbers by 1-digit numbers, using number bonds and long division as the key methods.
To divide 3-digit numbers by 1-digit numbers, using long division, short division and mental methods, that give rise to remainders.

Number - Word Problems:

To solve word problems involving multiple operations; to identify the operation needed to carry out the plan.
To solve word problems involving multiplication and division using bar models as the main heuristic.
To solve word problems involving multiple operations, identifying key information and representing information using bar model diagrams.
To solve word problems involving multiple operations, using bar models as they key heuristic to represent key information.

Statistics – Graphs:

To read the information presented in a table and interpret its meaning.
To read and respond to information presented in a table.
To read and respond to tables that have a variety of data sets.
To read and interpret information provided in a line graph where a single line represents the data.
To read and interpret information presented on a line graph where the data is represented by more than one line.
To read and interpret information presented on a line graph where the data is represented by more than one line.
To read and interpret information presented in a table and turn it into a line graph; to determine relationships between data sets.

Number – Fractions:

To divide whole numbers to create fractions; to create mixed numbers and improper fractions when dividing whole numbers.
To write improper fractions and mixed numbers using a number line and pictorial methods.
To find equivalent fractions using pictorial methods.
To compare and order fractions using the pictorial method.
To compare and order improper fractions using the pictorial method.
To compare mixed numbers using pictorial representations; to find common denominators where one fraction is already the common denominator for all fractions in the question.
To make number pairs (number bonds) with fractions with different denominators.
To add unlike fractions by finding a common denominator using pictorial methods.
To add unlike fractions by finding a common denominator using pictorial methods.

To add together unlike fractions where the sum is greater than 1, creating mixed numbers or improper fractions.
To add unlike fractions which create improper fractions and mixed numbers that give rise to simplification.
To subtract fractions with different denominators; to subtract fractions from whole numbers.
subtract fractions where the denominators are not the same; to use bar models as a key strategy for subtracting fractions.
To subtract fractions and mixed numbers from mixed numbers with different denominators.
To multiply fractions by whole numbers creating other fractions, mixed numbers or improper fractions.
To multiply fractions by whole numbers where the product is an improper fraction or mixed number.
To multiply mixed numbers by whole numbers, creating larger mixed numbers.
To multiply mixed numbers by whole numbers in multi-step word problems.

Year 5 – Spring Term
Knowledge and skills
Fractions continued – see previous knowledge and skills from Autumn Term **Number – Decimals:** To write decimal numbers. To read and write decimals. To read and write decimals. To compare tenths and hundredths written as decimals. To order and compare decimals. To compare and order decimals of amounts. To write fractions as decimals. To add and subtract amounts in decimals. To add and subtract decimals; to add and subtract amounts in pounds and pence. To add and subtract amounts in pounds and pence. To add and subtract decimals; to add and subtract amounts in pounds and pence. To add and subtract decimals to find the smallest possible sum and difference. To add and subtract decimals; to find number pairs that add up to 1. To add and subtract the perimeter of an object using decimals. To round decimals to the nearest whole number; to round numbers to nearest tenth **Number – Percentages:**

To compare quantities; to compare fractions, decimals and percentages; to convert fractions to decimals and percentages.
To convert values of an amount into percentages; to convert fractions into percentages.
To convert values of an amount into percentages; to convert fractions into percentages.

Geometry – Properties of shape:

To know the names and qualities of acute, right, obtuse and reflex angles.
To measure angles using a protractor.
To draw, measure and add angles using a protractor.
To measure angles using a protractor; to identify two angles which add up to 180 degrees on a straight line.
To investigate angles that, when combined, make 360 degrees.
To draw angles using a protractor.
To draw lines and angles with a high level of accuracy.
To describe the sides and angles of both rectangles and squares.
To investigate the angles of various quadrilaterals, including squares and rectangles.
To solve problems involving angles in rectangles.
To solve problems involving angles.
To use our understanding of angles to solve problems.
To investigate regular polygons

Year 5 – Summer Term
Knowledge and skills
Geometry – Position and Direction: To name and plot points. To describe the position of a shape following a translation. To describe movements and reflecting shapes. To describe the movement of a 2-D shape when reflected. To reflect a shape more than once. **Measurement – length, mass, time, temperature:** To convert units of length. To convert units of length, including centimetres and metres. To convert units of length. To solve problems by converting units of length.

To convert units of mass.
To convert units of mass, including grams into kilograms.
To convert units of mass.
To convert units of mass, including kilograms and pounds.
To convert units of time.
To convert units of time from days into weeks and months.
To convert units of time.
To solve problems by converting units of time.
To convert units of time.
To read the temperature on a thermometer.

Measurement – Area and perimeter:

To find the perimeter of shapes.
To find shapes with a specific perimeter.
To find the perimeter of different shapes.
To use scale diagrams to find the perimeter of a shape.
To measure the area of shapes by counting squares.
To measure the area of squares.
To measure the area of a shape.
To measure area in square metres.
To measure area in square metres.
To find the area of shapes in square metres.
To make an estimation of area in kilometres.

Measurement - Volume:

To understand the volume of solids.
To find the volume of 3-D shapes.
To find the volume of solids.
To find the capacity of a cuboid.
To find the capacity of rectangular boxes.
To compare and convert units of volume.
To convert units of volume (metric and imperial).
To convert units of volume (metric and imperial).
To solve word problems involving volume.

To solve word problems involving volume.
Number – Roman Numerals:
To write Roman numerals to 1000.
To write numbers in their thousands in Roman numerals.

Year 6 – Autumn Term
Knowledge and skills
Number – Place value: To construct and record numbers to 10 000 000; to recognise the value of digits to 10 000 000. To compare numbers to 10 000 000 using place value. To compare and order numbers to 10 000 000; to create combinations of numbers using a fixed number of digits. To round numbers to 10 000 000 to the nearest miliion, hundred thousand and ten thousand. To round numbers to the nearest appropriate number up to and including millions; to determine when rounding is appropriate and to which value. **Number – Calculations with four operations:** To use multiple operations and create expressions from a picture; to use the order of operations to solve expressions. To create and solve expressions using the four operations. To multiply numbers by multiples of 10; to use number bonds as a key strategy in multiplication. To multiply 3- and 4-digit numbers by 2-digit numbers without regrouping or renaming; to use both number bonds and the column method as key strategies. To multiply 3- and 4-digit numbers by 2-digit numbers without regrouping or renaming; to use both number bonds and the column method as key strategies. To multiply 3- and 4-digit numbers by 2-digit numbers with regrouping and renaming; to use number bonds and pattern recognition as key strategies for multiplication. To multiply 3- and 4-digit numbers by 2-digit numbers with regrouping and renaming; to use number bonds and the column method as key strategies. To estimate products of multiplying 3- and 4-digit numbers by a 2-digit numbers; to use knowledge of multiplication to create specific products. To divide 3-digit numbers by 2-digit numbers using a variety of strategies; to use number bonds, long division and bar models to facilitate division by 2-digit numbers. To divide 4-digit numbers by 2-digit numbers; to use number bonds and long division as the key strategies.

To divide 4-digit numbers by 2-digit numbers using a variety of methods; to use number bonds, long and short division as key methods.
To divide 3-digit numbers by 2-digit numbers giving rise to remainders; to use number bonds and long and short division as key strategies to solve division problems.
To divide 4-digit numbers by 2-digit numbers giving rise to a remainder; to represent the remainder as part of a whole amount of money or decimal.

Number-Fractions:

To use concrete materials to simplify fractions; to recognise equivalence in fractions to 1/4.
To simplify fractions using division and common factors; to represent fractions using concrete materials and pictorial representations.
To compare fractions and place them in order from smallest to largest.
To compare and order fractions by finding common denominators.
To compare and order fractions using common factors.
Adding and subtracting fractions with different denominators; using pictorial representations to compare fractions and add/subtract.
To add and subtract fractions with different denominators.
To add and subtract mixed numbers, including fractions with different denominators; to subtract from the whole and add the remainder back on.
To add and subtract fractions with different denominators; to add and subtract mixed numbers.
To multiply fractions using pictorial representations and abstract methods.
To determine if the commutative law applies to fractions; to multiply fractions using concrete materials and pictorial representations.
To use concrete materials to understand and solve the multiplication of fractions; to simplify equations using pattern blocks.
To divide a fraction by a whole number; to use pictorial representation to divide whole numbers into fractions.
To divide fractions by whole numbers using concrete materials and pictorial representations; to divide fractions when the numerator and divisor are not easily divisible.
To divide fractions by a whole number; to use pictorial representations to support division.

Number – Decimals:

To read and write decimals to thousandths; to use concrete materials to represent decimals.
To divide whole numbers by larger whole numbers; to use Base 10 materials to represent tenths, hundredths and thousandths.
To divide whole numbers that give rise to decimals; to calculate decimal fraction equivalents using long division.
To convert fractions into decimals using bar models and long division.
To write fractions as decimals; to use long division as the key strategy for turning fractions into decimals.
To multiply decimals by whole numbers using partitioning or the worded method to help find the solution.
To multiply whole numbers that include a decimal by other whole numbers; to use partitioning and the worded method as

key strategies.
To multiply decimals by whole numbers, including regrouping and renaming.
To multiply decimals by whole numbers using a variety of methods; to use the heuristic 'making a list' to help solve a problem.
To divide decimals using number bonds and number discs as the key strategies.
To divide decimals using bar models, number bonds and long division as key strategies, including regrouping and renaming.
To multiply decimals by a 2-digit whole number using number discs and the column method.
To divide decimals by 2-digit numbers using number bonds and the worded method.
To divide decimals by 2-digit whole numbers using number bonds and the worded method.

Year 6 – Spring Term
Knowledge and skills
Measurement: To convert common measurements into centimetres and millimetres. To convert units of measure into different units; to use knowledge of decimals and fractions to help convert units. To convert metres into kilometres as units of measure. To convert distances between miles and kilometres. To convert units of mass from grams to kilograms using decimals and fractions. To convert units of volume from millilitres to litres. To convert units of time from minutes to hours; to represent time using 24-hour notation. **Number – Percentages:** To find the percentage of a whole number using division and multiplication; to use bar modelling as a pictorial approach to calculating percentage. To find the percentage of a quantity; to use bar model diagrams to support the division and multiplication of numbers towards the percentage. To find the percentage change in an amount over time; to calculate the percentage change where the number gives rise to a decimal. To use percentage, bar models and fractions to compare amounts. **Ratio:** To use ratios and fractions to compare objects; to find the relationship between ratios, percentages and fractions. To determine the ratio of a quantity using concrete materials; to simplify ratios using concrete materials in addition to division. To compare more than two quantities using the term 'ratio'; to use bar models to express ratios where there is more than one quantity. To compare quantity using both fractions and ratios; to use bar model diagrams to represent ratios. To compare quantities using bar models and common factors; to use multiplication and division to simplify ratios. To compare numbers using ratios; to make decisions about simplifying ratios using division.

To solve word problems using a variety of heuristics including guess-and-check and bar models; to apply knowledge of ratios to word problems.
To solve word problems using the bar model heuristic; to employ division and multiplication as primary strategies when solving word problems visually.
To apply the guess-and-check and advanced bar model heuristic to ratio word problems.

Algebra:

To determine a pattern using concrete materials and pictorial representation; to use a table to identify a repeating pattern; to express a rule using a letter or symbol.
To determine a pattern using concrete materials and pictorial representation; to use a table to identify a repeating pattern; to express the relationship between consecutive numbers in terms of a symbol or letter.
To determine a pattern using concrete materials and pictorial representation; to use a table to identify a pattern; to express the relationship between consecutive numbers in terms of a symbol or letter.
To determine a pattern using concrete materials and pictorial representation; to use a table to identify a pattern; to express unknown numbers in terms of a letter or symbol, including using a number before a letter for multiplication.
To use a table to identify a pattern; to write algebraic expressions using each of the four operations.
To use examples to identify rules; to write algebraic expressions using each of the four operations; to evaluate algebraic expressions including the use of inverse operations.
To recognise patterns; to write algebraic expressions with two steps; to evaluate algebraic expressions with two steps.
To recognise patterns; to write and evaluate algebraic expressions with two steps; to write and use formulae.
To use formulae to solve problems; to replace a letter/variable with a number then solve the equation; to use inverse operations to solve equations.
To solve equations; to use equations to find unknown values.

Measurement – Area and perimeter:

To find the area and perimeter of rectangles; to calculate perimeter using the known area and vice versa.
To find and calculate the area of a parallelogram; to use concrete materials and prior understanding of area to construct a formula for the area.
To use prior knowledge of area to determine and solve the area of a triangle; to use and apply the formula for the area of a rectangle to solve problems involving triangles.
To calculate the area of a triangle using a formula; to calculate the area of a triangle in multiple ways.
To use multiple methods to solve the area of a triangle.
To find the area of a parallelogram using an understanding of triangles; to use concrete materials to find the area of a parallelogram.

Measurement – Volume:

To find the volume of cubes and cuboids using concrete materials.
To determine the formula for the volume of cubes and cuboids and apply it to calculate the volume of shapes.

To estimate the volume of objects and spaces; to calculate the volume of boxes using the formula for volume of cubes and cuboids.
To calculate the volume of boxes using the formula for volume of a cube; to expose common misconceptions in volume through a 3-box arrangement.
To solve word problems involving the volume of cubes and cuboids; to apply the formula for the volume of a cube or cuboid.

Year 6 – Summer Term
Knowledge and skills
SATs **Geometry – Properties and shapes:** To investigate opposite angles; to use prior knowledge of angles to solve problems involving angles. To solve problems involving angles using the bar model heuristic; to solve problems involving angles without protractors. To determine and show the sum of the angles inside a triangle. To investigate and determine angles in quadrilaterals. **Geometry – Position and movement:** To represent negative numbers on both vertical and horizontal number lines. To describe the positions of objects on a coordinate grid; to use x and y axes to determine the position of objects on a grid. To describe the position of points using coordinates on a grid. To draw polygons on a coordinate grid; to recognise polygons on a coordinate grid. **Statistics – Graphs and averages:** To calculate the average (mean) of sets of values. To calculate the mean. To calculate the mean. To solve problems involving the mean; to use the mean and the number of values to calculate the total; to use given information to find unknown values. To show information on graphs; to transfer information from a table to a pie chart. To read and interpret pie charts. To read and interpret pie charts; to use percentages in pie charts. To read and interpret pie charts; to use knowledge of angles to interpret pie charts. To read line graphs; to interpret the information in line graphs that show distance and time. To read and interpret line graphs; to answer questions about the information in line graphs.

The Christ Church, Walshaw Mathematics Curriculum

Number – Negative Numbers:
To add and subtract negative numbers using a number line.
To create number stories using negative numbers.