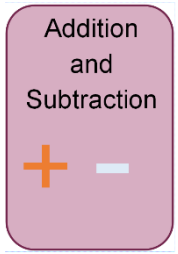
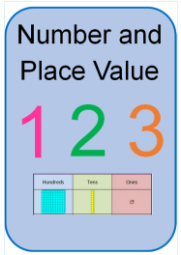
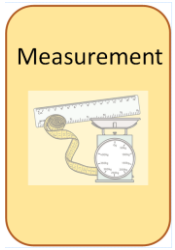
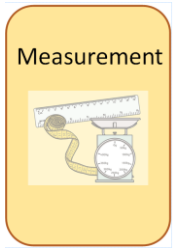
	Fluency Declarative/substantive	Methods Procedural/disciplinary	Reasoning and problem solving Conditional	Retrieval
Year 1 **Spring** Place value  	**I know:** • To count to numbers including 20. • That 10 ones and 1 ten are equivalent • That 'teen' numbers are 1 ten and some ones. • How to represent 11, 12 and 13 • How to represent 14, 15 and 16 • How to represent 17, 18 and 19 • That 2 tens are equivalent to 20. • To find 1 more and 1 less than any number within 20. • That 1 more is the next number along the number line, while 1 less is the previous number. • That numbers can be estimated on a number line to 20. • Numbers to 20 can be compared. • Numbers to 20 can be ordered. **Fluent in Five** Count in ones to and across 100, forward and backwards, beginning with 0 or 1 or from any given number. Count in multiples of twos, fives and tens. Count, read and write numbers up to 100 in numerals. Read and write numbers from 1 to 20 in words. Identify one more and one less. Represent and use number bonds within 20. Represent and use number bonds and related subtraction facts within 20. dd and subtract one-digit and two digit numbers to 20, including zero.	**I know how to:** Read and write numbers from 1 to 20 in numerals and words. Use a number line.	Identify and represent numbers using objects and pictorial representations including the number line.	Geometry (shape) Use of part whole models. **Resources/staff subject knowledge:** White Rose Classroom Secrets Thinking Toms NCETM - National Curriculum Resource Tool | NCETM **Vocabulary** Equivalent Ones Tens Teen 1 more 1 less Estimate Greatest Smallest Least Fewest

	Fluency Declarative/substantive	Methods Procedural/disciplinary	Reasoning and problem solving Conditional	Retrieval
Year 1 **Spring** Addition and subtraction 	**I know:** • You can add by counting on within 20. • Ones can be added using number bonds. • To find and make number bonds to 20. • Doubles are made by adding two equal quantities together. • Doubles can be used to work out near doubles. • Ones can be subtracted using number bonds. • That there are related facts within addition and subtraction • **Fluent in Five** Count in ones to and across 100, forward and backwards, beginning with 0 or 1 or from any given number. Count in multiples of twos, fives and tens. Count, read and write numbers up to 100 in numerals. Read and write numbers from 1 to 20 in words. Identify one more and one less. Represent and use number bonds within 20. Represent and use number bonds and related subtraction facts within 20. dd and subtract one-digit and two digit numbers to 20, including zero.	**I know how to:** Add and subtract 1-digit and 2-digit numbers to 20, including zero. Counting back is a strategy to use for subtraction. Finding the difference is a strategy to use for subtraction.	Use the inverse to solve missing number problems. Solve one-step problems that involve addition and subtraction, using concrete objects and pictorial representations, and missing number problems such as 7 = ? – 9	Geometry (shape) Ordering and counting numbers to 20 **Resources/staff subject knowledge:** White Rose Classroom Secrets Thinking Toms NCETM - National Curriculum Resource Tool | NCETM **Vocabulary** Counting on Number bonds Double Near double Subtraction Related facts Fact families Counting back Difference.

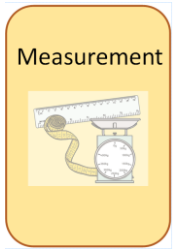
	Fluency Declarative/substantive	Methods Procedural/disciplinary	Reasoning and problem solving Conditional	Retrieval
Year 1 **Spring** Place value 	**I know:** • To count numbers from 20 to 50. • Multiples of 10 up to 50. • How many tens are in each multiple of 10 up to 50. • To count by making groups of tens. • To describe a number by the number of tens and ones the number is made from. • To partition numbers to 50 into tens and ones. • Numbers to 50 can be placed on a number line. • That the position of numbers can be estimated when using a number line. • To find 1 more and 1 less than any number between zero and 50. **Fluent in Five** Count in ones to and across 100, forward and backwards, beginning with 0 or 1 or from any given number. Count in multiples of twos, fives and tens. Count, read and write numbers up to 100 in numerals. Read and write numbers from 1 to 20 in words. Identify one more and one less. Represent and use number bonds within 20. Represent and use number bonds and related subtraction facts within 20. dd and subtract one-digit and two digit numbers to 20, including zero.	**I know how to:** 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 and represent numbers using objects and pictorial representations including the number line.	Geometry (shape) Doubles are made by adding two equal quantities together. **Resources/staff subject knowledge:** White Rose Classroom Secrets Thinking Toms NCETM - National Curriculum Resource Tool | NCETM **Vocabulary** Multiple Groups of 10 Partition Number line Estimate 1 more 1 less Zero

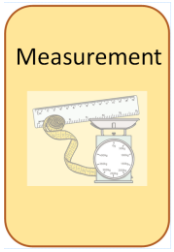
	Fluency Declarative/substantive	Methods Procedural/disciplinary	Reasoning and problem solving Conditional	Retrieval
Year 1 **Spring** Length and height  	**I know:** • compare lengths and heights of objects using language such as “longer than”, “shorter than” and “taller than”. • To measure the lengths and heights of objects, using non-standard units of measure such as cubes or paper clips. • To measure the lengths and heights of objects using a ruler and a standard unit of measure: centimetres. **Fluent in Five** Count in ones to and across 100, forward and backwards, beginning with 0 or 1 or from any given number. Count in multiples of twos, fives and tens. Count, read and write numbers up to 100 in numerals. Read and write numbers from 1 to 20 in words. Identify one more and one less. Represent and use number bonds within 20. Represent and use number bonds and related subtraction facts within 20. dd and subtract one-digit and two digit numbers to 20, including zero.	**I know how to:** Measure and begin to record lengths and heights.	Compare, describe and solve practical problems for: lengths and height; mass/weight; capacity and volume; time.	Geometry (shape) Multiples of 10 up to 50. **Resources/staff subject knowledge:** White Rose Classroom Secrets Thinking Toms NCETM - National Curriculum Resource Tool | NCETM **Vocabulary** Length Height Longer than Shorter than Taller than Centimetres Cm

	Fluency Declarative/substantive	Methods Procedural/disciplinary	Reasoning and problem solving Conditional	Retrieval
Year 1 **Spring** Mass and Volume  	**I know:** • When describing mass to use heavier and lighter. • When using balance scales the heavier object is lower on the balance scale. • When a scale is balanced, objects have the same mass. • To use “heavier” and “lighter” to compare the masses of objects. • That capacity is the maximum amount that something can hold. • That volume is the amount of something inside a container. • How to measure capacity. • How to compare the capacities of different containers. **Fluent in Five** Count in ones to and across 100, forward and backwards, beginning with 0 or 1 or from any given number. Count in multiples of twos, fives and tens. Count, read and write numbers up to 100 in numerals. Read and write numbers from 1 to 20 in words. Identify one more and one less. Represent and use number bonds within 20. Represent and use number bonds and related subtraction facts within 20. dd and subtract one-digit and two digit numbers to 20, including zero.	**I know how to:** Measure and begin to record the mass and weights.	Compare, describe and solve practical problems for: lengths and heights; mass/weight; capacity and volume; time.	Geometry (shape) Partition numbers to 50 into tens and ones. **Resources/staff subject knowledge:** White Rose Classroom Secrets Thinking Toms NCETM - National Curriculum Resource Tool | NCETM **Vocabulary** Mass Volume Heavier Lighter Balance scale Balanced Capacity Volume

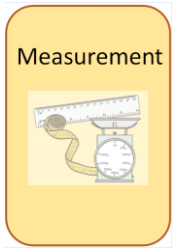
	Fluency Declarative/substantive	Methods Procedural/disciplinary	Reasoning and problem solving Conditional	Retrieval
Year 2 **Spring** Money  	**I know:** • To count money using pence. • To count money using pounds. • Both notes and coins are used when counting money. • Money can be counted in both pounds and pence. • To choose notes and coins to make a given amount. • There are different ways to make the same amount of money. • Money can be compared using • the language of “greater than”, “less than”, “most” and “least”. • Calculations can be made using money. • 100p is equal to £1 • That £1 can be made in different ways. • How to find change. **Fluent in Five** Count in multiples, Reading and writing numbers Compare and order numbers Finding more or less (mentally) Place value in numbers Number bonds and known facts (+/-) Mental addition and subtraction Written addition and subtraction Known multiplication and division facts. Fractions of numbers, types of fractions and equivalent fractions.	**I know how to:** Recognise and use symbols for pounds (£) and pence (p); combine amounts to make a particular value.	Solve simple problems in a practical context involving addition and subtraction of money of the same unit, including giving change. complete two-step problems involving money.	Geometry (shape) **Resources/staff subject knowledge:** White Rose Classroom Secrets Thinking Toms NCETM - National Curriculum Resource Tool | NCETM **Vocabulary** Worth Pence Pounds Notes Coins £ Greater than Less then Least Most Change

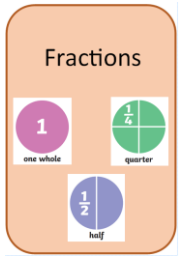
	Fluency Declarative/substantive	Methods Procedural/disciplinary	Reasoning and problem solving Conditional	Retrieval
Year 2 **Spring** Multiplication and division.  	**I know:** • There is a connection between repeated addition and multiplication. • To make equal groups with a given number of objects. • To use equal groups to find the total using repeated addition. • The symbol for multiplication is x • How to use the multiplication symbol in calculations. • Multiplication is commutative. • Multiplication can be represented with arrays. • Equal groups can be made by grouping. • Equal groups can be made by sharing. • The 2 x table. • To use my knowledge of the 2 times-table to divide by 2. • when a number is doubled, you multiply by 2 and when a number is halved, you divide by 2. • How to identify if a number is odd or even. • The 10 x table. • To use my knowledge of the 10 times-table to divide by 10. • The 5 x table. • To use my knowledge of the 5 times-table to divide by 5. • That there is a relationship between the 5 x and 10 x table. **Fluent in Five** Count in multiples, Reading and writing numbers Compare and order numbers Finding more or less (mentally) Place value in numbers Number bonds and known facts (+/-) Mental addition and subtraction Written addition and subtraction Known multiplication and division facts. Fractions of numbers, types of fractions and equivalent fractions.	**I know how to:** Calculate mathematical statements for multiplication and division within the multiplication tables and write them using the multiplication (×), division (÷) and equals (=) signs		Geometry (shape) 100p is equal to £1 That £1 can be made in different ways. How to find change. **Resources/staff subject knowledge:** White Rose Classroom Secrets Thinking Toms NCETM - National Curriculum Resource Tool | NCETM **Vocabulary** Repeated addition Equal groups Total Multiplication symbol (x) Commutative Array Grouping Sharing Double Halve Odd Even

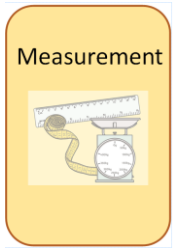
	Fluency Declarative/substantive	Methods Procedural/disciplinary	Reasoning and problem solving Conditional	Retrieval
Year 2 **Spring** Length and height  	**I know:** • Lengths and heights can be measured using a ruler in centimetres. • Lengths and heights can be measured in metres. • Lengths and heights can be compared using language such as “longer than”, “shorter than” and “taller than”. • Lengths and heights can be ordered. **Fluent in Five** Count in multiples, Reading and writing numbers Compare and order numbers Finding more or less (mentally) Place value in numbers Number bonds and known facts (+/-) Mental addition and subtraction Written addition and subtraction Known multiplication and division facts. Fractions of numbers, types of fractions and equivalent fractions.	**I know how to:** Use all four operations with lengths and heights.	Solve both one-step and two-step problems relating to lengths and heights.	Geometry (shape) Recall 2, 5 and 10 times table. **Resources/staff subject knowledge:** White Rose Classroom Secrets Thinking Toms NCETM - National Curriculum Resource Tool | NCETM **Vocabulary** Length Height Centimetres (cm) Metres (m) Longer than Shorter than Taller than Compare

	Fluency Declarative/substantive	Methods Procedural/disciplinary	Reasoning and problem solving Conditional	Retrieval
Year 2 **Spring** Mass, capacity and temperature. 	**I know:** • The mass of 2 or more objects can be compared. • Mass is measured in grams. • Mass is measured in kilograms • A kilogram is heavier than a gram. • Volume and capacity can be compared. • Volume is measured in millilitres. • Volume is measured in litres. • Temperature is measured in degrees Celsius. **Fluent in Five** Count in multiples, Reading and writing numbers Compare and order numbers Finding more or less (mentally) Place value in numbers Number bonds and known facts (+/-) Mental addition and subtraction Written addition and subtraction Known multiplication and division facts. Fractions of numbers, types of fractions and equivalent fractions.	**I know how to:** Calculate using all four operations with mass. Calculate using all four operations with volume and capacity.	Solve multi-step problems involving mass. Solve multi-step problems involving volume and capacity.	Geometry (shape) Recall 2, 5 and 10 times table. **Resources/staff subject knowledge:** White Rose Classroom Secrets Thinking Toms NCETM - National Curriculum Resource Tool | NCETM **Vocabulary** Mass Heavier Lighter Scales Weigh Gram Estimate Kilogram Temperature Degrees Celsius Volume Capacity

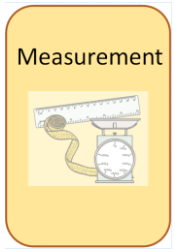
	Fluency Declarative/substantive	Methods Procedural/disciplinary	Reasoning and problem solving Conditional	Retrieval
Year 3 **Spring** Multiplication and division B.  	**I know:** • Multiples of 10 end in zero. • Related calculations, for example 3 x 4 = 12 so 3 x 40 = 120. • How to reason about multiplication. • A 2-digit number can be multiplied by a 1-digit number with no exchange. • A 2-digit number can be multiplied by a 1-digit number with exchange. • There is a link between multiplication and division. • A 2-digit number can be divided by a 1-digit number with no exchange. • A 2-digit number can be divided by a 1-digit number with flexible partitioning. • A 2-digit number can be divided by a 1-digit number with remainders. • Scaling can be used as opposed to repeated addition. • Working systematically can provide all possible answers to a problem. **Fluent in Five** Count in multiples. Read and write numbers. Compare and order. Find 10 or 100 more or less. Recognise the place value of each digit. Add and subtract (written method/mentally). Multiplication and division facts for times tables. Multiply by 0. Recognise, find and write fractions. Equivalent fractions Add and subtract fraction with the same denominator.	**I know how to:** Multiply a 2-digit number by a 1-digit number – no exchange. Multiply a 2-digit number by a 1-digit number – with exchange. Divide a 2-digit number by a 1-digit number - no exchange. Divide a 2-digit number by a 1-digit number - flexible partitioning. Divide a 2-digit number by a 1-digit number - with remainders.	Working systematically can provide all possible answers to a problem.	Geometry (shape) **Resources/staff subject knowledge:** White Rose Classroom Secrets Thinking Toms NCETM - National Curriculum Resource Tool | NCETM **Vocabulary** Multiply Divide Multiples Related calculations Exchange Flexible partitioning Remainders Scaling Systematically.

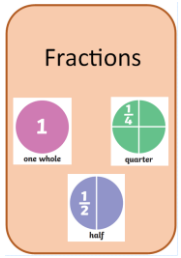
	Fluency Declarative/substantive	Methods Procedural/disciplinary	Reasoning and problem solving Conditional	Retrieval
Year 3 **Spring** Length and perimeter  	**I know:** • Length can be measured in metres and centimetres. • 10mm is equal to 1cm. • Length can be measured in millimetres. • Units of measurement can be combined. • 100cm is equal to 1 metre. • Common fractions can be used to convert between metres and centimetres e.g., 1/2 m = 50cm. • To find equivalent lengths. • Lengths can be compared and ordered. • Lengths can be added that are in the same unit of measurement. • Lengths can be added with different units. • Lengths can be subtracted that are in the same unit of measurement. • Lengths can be subtracted with different units. • That perimeter is the distance around the outside of a closed 2-D shape. • To measure the sides of different shape in centimetres to find the perimeter. **Fluent in Five** Count in multiples. Read and write numbers. Compare and order. Find 10 or 100 more or less. Recognise the place value of each digit. Add and subtract (written method/mentally). Multiplication and division facts for times tables. Multiply by 0. Recognise, find and write fractions. Equivalent fractions Add and subtract fraction with the same denominator.	**I know how to:** To use my understanding of the properties of different shapes to calculate the perimeter of simple 2-D shapes. Measure, compare, add and subtract: lengths. Measure the perimeter of simple 2-D shapes.		Geometry (shape) Multiply and divide a 2-digit number by a 1-digit number – with and without exchange. **Resources/staff subject knowledge:** White Rose Classroom Secrets Thinking Toms NCETM - National Curriculum Resource Tool | NCETM **Vocabulary** Length Metres Centimetres Millimetres Convert Equivalent Unit of measurement Perimeter

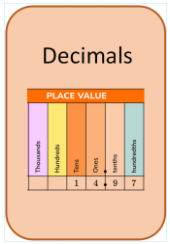
	Fluency Declarative/substantive	Methods Procedural/disciplinary	Reasoning and problem solving Conditional	Retrieval
Year 3 **Spring** Fractions A  	**I know:** • The denominators of unit fractions show how many equal parts the whole has been divided into. • Unitary fractions can be compared and ordered. • That a non-unit fraction is made up of a quantity of unit fractions. • when the numerator of a fraction is equal to its denominator, then the fraction is equivalent to 1 whole. • Non-unitary fractions can be compared and ordered when they have the same denominator. • How many equal parts a scale has been split into by using the numerator and denominator. • Fractions can be represented on a number line. • I can count forwards and backwards in fractions. • Equivalent fractions can be used by using a number line. • Equivalent fractions can be used by using a bar model. **Fluent in Five** Count in multiples. Read and write numbers. Compare and order. Find 10 or 100 more or less. Recognise the place value of each digit. Add and subtract (written method/mentally). Multiplication and division facts for times tables. Multiply by 0. Recognise, find and write fractions. Equivalent fractions Add and subtract fraction with the same denominator.	**I know how to:** Use a bar model to find equivalent fractions. Use a number line to find equivalent fractions.		Geometry (shape) .Measure the perimeter of simple 2-D shapes. **Resources/staff subject knowledge:** White Rose Classroom Secrets Thinking Toms NCETM - National Curriculum Resource Tool | NCETM **Vocabulary** Numerator Denominator Equal parts Unit fraction Non-unit fraction Compare Order Equivalent Whole Scale

	Fluency Declarative/substantive	Methods Procedural/disciplinary	Reasoning and problem solving Conditional	Retrieval
Year 3 **Spring** Mass and capacity  	**I know:** • Scales are used to read measurements. • Mass is measured in grams (up to 1000g) • Mass is measured in kilograms and grams. (2kg and 500g). • 1kg is equivalent to 1000g. • Kilograms are heavier than grams when comparing mass. • I can add and subtract grams and kilograms. • Capacity is the maximum amount of liquid a container can hold when full. • Volume refers to the specific amount of liquid in a container. • Millilitres are a measure of capacity and volume. • Litres and millilitres are a measure of capacity and volume. • 1litre is equivalent to 1000ml. • Capacities and volumes that can be measured can be compared. • I can add and subtract litres and millilitres. **Fluent in Five** Count in multiples. Read and write numbers. Compare and order. Find 10 or 100 more or less. Recognise the place value of each digit. Add and subtract (written method/mentally). Multiplication and division facts for times tables. Multiply by 0. Recognise, find and write fractions. Equivalent fractions Add and subtract fraction with the same denominator.	**I know how to:** Add and subtract units of measure.		Geometry (shape) Equivalent fractions **Resources/staff subject knowledge:** White Rose Classroom Secrets Thinking Toms NCETM - National Curriculum Resource Tool | NCETM **Vocabulary** Scales Mass Grams Kilograms Capacity Volume Millilitres Litres Equivalent

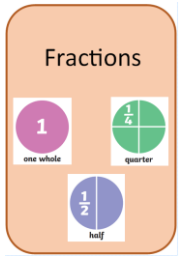
	Fluency Declarative/substantive	Methods Procedural/disciplinary	Reasoning and problem solving Conditional	Retrieval
Year 4 **Spring** Multiplication and division B  	**I know:** • When two whole numbers are multiplied to give a product, both the numbers that they have multiplied together are factors. • Factor pairs can be used to write equivalent calculations. • '10 times the size' is the same as 'multiplying by 10'. • Multiplying by 100 is the same as multiplying by 10 and then multiplying by 10 again. • That 'one-tenth the size' is the same as 'dividing by 10'. • That 'one-hundredth the size' is the same as 'dividing by 100'. • To scale numbers by 10 and 100. **Fluent in Five** Count in multiples Read and write numbers Compare and order numbers Find 10, 100 more or less. Place Value in numbers. Negative numbers. Number bonds and known facts Mental addition and subtraction Multiplication facts and division facts Fractions of numbers Decimals Equivalent fractions. Written addition and subtraction Calculations with fractions	**I know how to:** To multiply a 2-digit number by a 1-digit number informally. To multiply a 2-digit number by a 1-digit number using the short multiplication method. To multiply a 3-digit number by a 1-digit number using the short multiplication method. To carry out divisions where the tens and ones are both divisible by the number being divided by without any remainders. To divide a 2-digit number by a 1-digit number with remainders. To divide a 3-digit number by a 1-digit number with and without remainders.	To use multiplication to work out the number of possible combinations of sets of items. Which is the most efficient or appropriate method when multiplying.	Geometry (shape) Equivalent fractions **Resources/staff subject knowledge:** White Rose Classroom Secrets Thinking Toms NCETM - National Curriculum Resource Tool | NCETM **Vocabulary** Multiply Product Factors Factor pairs Equivalent Divide One tenth One hundredth Scale

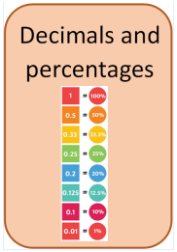
	Fluency Declarative/substantive	Methods Procedural/disciplinary	Reasoning and problem solving Conditional	Retrieval
Year 4 **Spring** Length and perimeter 	**I know:** • Length is measured using kilometres and metres. • Kilometres are greater than metres. • 1km is equal to 1000m. • Perimeter is calculated by adding the sides of a rectilinear shape on a squared grid. • Perimeter can be calculated when there is only one length and width given. • that a rectilinear shape has straight lines that meet at right angles. • To find missing side lengths when calculating perimeter. • That addition and subtraction might be needed to calculate a missing length. • That you can calculate the perimeter of regular polygons. • That you can calculate the perimeter of irregular polygons. **Fluent in Five** Count in multiples Read and write numbers Compare and order numbers Find 10, 100 more or less. Place Value in numbers. Negative numbers. Number bonds and known facts Mental addition and subtraction Multiplication facts and division facts Fractions of numbers Decimals Equivalent fractions. Written addition and subtraction Calculations with fractions	**I know how to:** Calculate missing lengths		Geometry (shape) Multiply 2- and 3-digit numbers by 1 digit. **Resources/staff subject knowledge:** White Rose Classroom Secrets Thinking Toms NCETM - National Curriculum Resource Tool | NCETM **Vocabulary** Kilometres Metres Perimeter Length Width Rectilinear Polygons Irregular polygons

	Fluency Declarative/substantive	Methods Procedural/disciplinary	Reasoning and problem solving Conditional	Retrieval
Year 4 **Spring** Fractions  	**I know:** • How many equal parts a whole has been divided into. • That fractions can be greater than 1. • A mixed number can be partitioned into its whole and fractional parts. • Mixed numbers can be placed on a number line. • When the denominators are the same, the greater the numerator, the greater the fraction. • That the numerator is greater than or equal to the denominator in an improper fraction. • Mixed numbers can be converted to improper fractions. • Improper fractions can be converted to mixed numbers. • Equivalent fractions can be placed on a number line. • Fractions with the same denominator can be added. • When adding mixed numbers to add the wholes then add the fractions. • Fractions with the same denominator can be subtracted. • Fractions can be subtracted from mixed numbers. **Fluent in Five** Count in multiples Read and write numbers Compare and order numbers Find 10, 100 more or less. Place Value in numbers. Negative numbers. Number bonds and known facts Mental addition and subtraction Multiplication facts and division facts Fractions of numbers Decimals Equivalent fractions. Written addition and subtraction Calculations with fractions	**I know how to:** Add and subtract fractions using mental strategies. Add and subtract fractions using a number line.		Geometry (shape) Missing number calculations linked to perimeter. **Resources/staff subject knowledge:** White Rose Classroom Secrets Thinking Toms NCETM - National Curriculum Resource Tool | NCETM **Vocabulary** Equal parts Whole Mixed number Denominator Numerator Improper fraction

	Fluency Declarative/substantive	Methods Procedural/disciplinary	Reasoning and problem solving Conditional	Retrieval
Year 4 **Spring** **Decimals A**  	**I know:** • That tenths are a whole split into ten equal parts. • the decimal point is used to separate whole numbers from decimals. • that 10 tenths are equivalent to 1 whole • that 1 comes after 0.9 • to find missing decimals numbers in a sequence. • All the digits move one place to the right when dividing by 10. • 1- and 2-digit numbers can be divided by 10. • That a hundredth is 1 whole split into 100 equal parts. • That ten 0.01s are equivalent to 0.1 • Decimal numbers can be partitioned into tenths and hundredths • That 0.1 is greater than 0.09 even though 1 is less than 9 • 1- and 2-digit numbers can be divided by 100. **Fluent in Five** Count in multiples Read and write numbers Compare and order numbers Find 10, 100 more or less. Place Value in numbers. Negative numbers. Number bonds and known facts Mental addition and subtraction Multiplication facts and division facts Fractions of numbers Decimals Equivalent fractions. Written addition and subtraction Calculations with fractions	**I know how to:** Place decimal numbers onto a number line.		Geometry (shape) Add and subtract fractions. **Resources/staff subject knowledge:** White Rose Classroom Secrets Thinking Toms NCETM - National Curriculum Resource Tool | NCETM **Vocabulary** Tenths Whole Equivalent Hundredths Digits

	Fluency Declarative/substantive	Methods Procedural/disciplinary	Reasoning and problem solving Conditional	Retrieval
Year 5 **Spring** Multiplication and division B 	**I know:** • Short multiplication is used to multiply a 4-digit number by a 1-digit number. • Long multiplication is used to multiply a 2-digit number by a 2-digit number. • Long multiplication is used to multiply a 3-digit number by a 2-digit number. • Long multiplication is used to multiply a 4-digit number by a 2-digit number. • Short division is used to divide a 2-digit number by a 1-digit number, with and without an exchange. • Short division is used to divide a 3-digit number by a 1-digit number, with and without an exchange. • Short division is used to divide a 4-digit number by a 1-digit number. • That when dividing the amount left over is called a remainder. **Fluent in Five** Counting in multiples Reading and writing numbers Finding 10, 100 more or less Place value in numbers Negative numbers Mental addition and subtraction Written addition and subtraction Known multiplication and division facts Squares and cubes Fractions of numbers Decimals Types of fractions Calculating with fractions.	**I know how to:** multiply a 4-digit number by a 1-digit number. multiply a 2-digit number by another 2-digit number Multiply a 3-digit number by a 2-digit number. multiply a 4-digit number by a 2-digit number. Dividie a 2-digit number by a 1-digit number. Divide a 3-digit number by a 1-digit number. Divide a 4-digit number by a 1-digit number	solve multiplication problems and discuss which is the most efficient. Make decisions regarding the most efficient or appropriate methods to use in a range of contexts. Apply knowledge of multiplication and division to solve problems.	Geometry (shape) Finding common denominators. **Resources/staff subject knowledge:** White Rose Classroom Secrets Thinking Toms NCETM - National Curriculum Resource Tool | NCETM **Vocabulary** Short multiplication Long multiplication Short division Remainder Exchange

	Fluency Declarative/substantive	Methods Procedural/disciplinary	Reasoning and problem solving Conditional	Retrieval
Year 5 **Spring** Fractions B  	**I know:** • A unit fraction can be multiplied by an integer. • To multiply a non-unit fraction by an integer. • To multiply a mixed number by an integer. • To divide by the denominator and multiply by the numerator when calculating a fraction of a quantity. • Fractions of amounts can be calculated and compared. • When finding the whole to identify one part and to use this to find the whole. • Commutativity of multiplication can be used when fractions are operators. 1/3 of 6 is the same as 6 x 1/3. **Fluent in Five** Counting in multiples Reading and writing numbers Finding 10, 100 more or less Place value in numbers Negative numbers Mental addition and subtraction Written addition and subtraction Known multiplication and division facts Squares and cubes Fractions of numbers Decimals Types of fractions Calculating with fractions.	**I know how to:** multiply a non-unit fraction by an integer. To multiply a mixed number by an integer. To divide by the denominator and multiply by the numerator when calculating a fraction of a quantity.	.	Geometry (shape) Formal written methods for multiplication and division. **Resources/staff subject knowledge:** White Rose Classroom Secrets Thinking Toms NCETM - National Curriculum Resource Tool | NCETM **Vocabulary** Unit fraction Non unit fraction Multiply Divide Denominator Numerator Mixed number Integer Mixed number Commutative

	Fluency Declarative/substantive	Methods Procedural/disciplinary	Reasoning and problem solving Conditional	Retrieval
Year 5 **Spring** Decimals and percentages 	**I know:** • 10 tenths are equal to 1 whole. • 10 hundredths are equal to 1 tenth. • To read and write decimals up to 2 decimal places. • Fractions and decimals can be equivalent. (tenths) • Fractions and decimals can be equivalent. (hundredths) • The equivalent decimals for halves, quarters, fifths and tenths. • A thousandth is 1 whole split into 1,000 equal parts. • Thousandths can be represented in decimal form. • Thousandths are represented with up to 3 decimal places on a place value chart. • Numbers with 3 decimal places can be ordered and compared. (same number of decimal places). • Any decimals with up to 3 decimal places can be ordered and compared. • To round numbers with 1 and 2 decimal places to the nearest whole number. • To round to 1 decimal place. • “Per cent” relates to “number of parts per 100. • Percentages can be compared to fractions. • Decimal equivalents to percentages. • The link between equivalent fractions, decimals, and percentages. **Fluent in Five** Counting in multiples Reading and writing numbers Finding 10, 100 more or less Place value in numbers Negative numbers Mental addition and subtraction Written addition and subtraction Known multiplication and division facts Squares and cubes Fractions of numbers Decimals Types of fractions Calculating with fractions.	**I know how to:**	Solve problems involving numbers up to 3 decimal places. Solve problems which require knowing percentage and decimal.	Geometry (shape) Fractions of amounts. **Resources/staff subject knowledge:** White Rose Classroom Secrets Thinking Toms NCETM - National Curriculum Resource Tool | NCETM **Vocabulary** Tenths Hundredths Thousandths Equivalent Fraction Decimal Percentage 2 decimal places 3 decimal places Percent Round Compare

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Year 5 **Spring** Perimeter and area.  	**I know:** • that the perimeter is the distance around the outside of a two-dimensional shape. • There are different methods for calculating the perimeter of rectangles. • A rectilinear shape is a shape that has only has straight sides and right angles. • When calculating the perimeter of a rectilinear shape, to mark sides that have already been included in the total, to avoid counting sides more than once. • A polygon is a closed two-dimensional shape with straight sides. • To use my knowledge of regular shapes to find the perimeter by multiplying by the number of sides. • That area is the space inside a two-dimensional shape. • Area is recorded by using square centimetre (cm2). • To split compound shapes to find the area of each rectangle and add them together. • To use squares to estimate the areas of non-rectilinear shapes. **Fluent in Five** Counting in multiples Reading and writing numbers Finding 10, 100 more or less Place value in numbers Negative numbers Mental addition and subtraction Written addition and subtraction Known multiplication and division facts Squares and cubes Fractions of numbers Decimals Types of fractions Calculating with fractions.	**I know how to:** Calculate area and perimeter.		Geometry (shape) Equivalent fractions, decimals and percentages. **Resources/staff subject knowledge:** White Rose Classroom Secrets Thinking Toms NCETM - National Curriculum Resource Tool | NCETM **Vocabulary** Perimeter Distance Two-dimensional shape. Rectangle Rectilinear Polygon Area Compound shapes

	Fluency Declarative/substantive	Methods Procedural/disciplinary	Reasoning and problem solving Conditional	Retrieval
Year 5 **Spring** Statistics  	**I know:** • The horizontal axis on a line graph measures time. • How to draw line graphs. • Line graphs can be read and interpreted. • How to read and interpret tables. • How to read and interpret two-way tables. • How information can be interpreted on a timetable. **Fluent in Five** Counting in multiples Reading and writing numbers Finding 10, 100 more or less Place value in numbers Negative numbers Mental addition and subtraction Written addition and subtraction Known multiplication and division facts Squares and cubes Fractions of numbers Decimals Types of fractions Calculating with fractions.	**I know how to:**	.Solve comparison, sum and difference problems using information presented in a line graph.	Geometry (shape) Area and perimeter **Resources/staff subject knowledge:** White Rose Classroom Secrets Thinking Toms NCETM - National Curriculum Resource Tool | NCETM **Vocabulary** Axis Line graph Tables Two-way tables Timetables Horizontal Vertical Interpret

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Year 6 **Spring** Ratio  	**I know:** • The relationship between two numbers can be expressed additively or multiplicatively. • how one value is related to another by making simple comparisons, such as: "For every 2 blue counters, there are 3 red counters. • A colon is used as the ratio symbol. • There is a link between ratio and fractions. • To use the language each square represents when completing scale diagrams. • To enlarge shapes and describe enlargements. • Similar shapes are defined as shapes where corresponding sides are in the same proportion and the corresponding angles are equal. **Fluent in Five** Counting in multiples Reading and writing numbers Finding 10, 100 more or less Place value in numbers Negative numbers Mental addition and subtraction Written addition and subtraction Known multiplication and division facts Squares and cubes Order of operations Fractions of numbers Decimals Types of fractions Calculating with fractions. Percentage of numbers.	**I know how to:**	Solve a variety of problems involving ratio. Explore different strategies for solving proportion problems. Apply knowledge of ratio and proportion to solving problems involving ingredients for recipes.	Geometry (shape) Converting units. **Resources/staff subject knowledge:** White Rose Classroom Secrets Thinking Toms NCETM - National Curriculum Resource Tool | NCETM **Vocabulary** Ratio Proportion Additively Multiplicatively Value Colon Scale Corresponding

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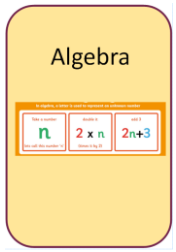
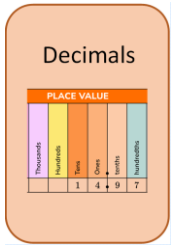
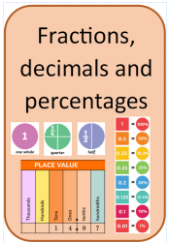
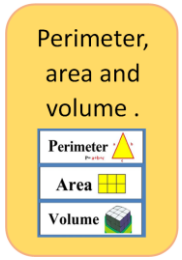
Year 6 **Spring** Algebra  	**I know:** • To use the inverse when using 1-step function machines. • How to calculate the output when the input is given in a 2-step function machine. • That phrases such as “2 more than a number” can be written more simply as, for example, “x + 2” or “y + 2”. • To find values of expressions by substituting numbers in place of the letters. • To substitute into formulae to work out values. • Equations are formed from diagrams and word descriptions. • To solve 1-step equations. • To solve 2-step equations. • Equations with two unknown values can have several solutions. • To solve problems with two unknowns when more than one piece of information is given, so there is only one possible solution. **Fluent in Five** Counting in multiples Reading and writing numbers Finding 10, 100 more or less Place value in numbers Negative numbers Mental addition and subtraction Written addition and subtraction Known multiplication and division facts Squares and cubes Order of operations Fractions of numbers Decimals Types of fractions Calculating with fractions. Percentage of numbers.	**I know how to:** Use simple formulae Express missing number problems algebraically		Geometry (shape) Ratio **Resources/staff subject knowledge:** White Rose Classroom Secrets Thinking Toms NCETM - National Curriculum Resource Tool | NCETM **Vocabulary** Input Output Function Rule

	Fluency Declarative/substantive	Methods Procedural/disciplinary	Reasoning and problem solving Conditional	Retrieval
Year 6 **Spring** Decimals  	**I know:** • The values of decimal places within 1. • The difference between integer and decimal parts of a number. • Numbers with up to 3 decimal places can be rounded to the nearest integer and tenth and hundredth. • Decimals can be added and subtracted. • Numbers with up to 3 decimal places can be multiplied by 10, 100 and 1000. • Whole and decimal numbers can be divided by 10, 100 and 1000 and that the answers will never have more than 3 decimal places. • Decimals can be multiplied by integers. • Decimals can be divided by integers. **Fluent in Five** Counting in multiples Reading and writing numbers Finding 10, 100 more or less Place value in numbers Negative numbers Mental addition and subtraction Written addition and subtraction Known multiplication and division facts Squares and cubes Order of operations Fractions of numbers Decimals Types of fractions Calculating with fractions. Percentage of numbers.	**I know how to:** Multiply 1-digit numbers with up to 2 decimal places by whole numbers. Use written division methods in cases where the answer has up to 2 decimal places	Multiply and divide decimals in context.	Geometry (shape) Algebra **Resources/staff subject knowledge:** White Rose Classroom Secrets Thinking Toms NCETM - National Curriculum Resource Tool | NCETM **Vocabulary** Decimal Integer Tenths Hundredths Thousands 3-decimal places.

	Fluency Declarative/substantive	Methods Procedural/disciplinary	Reasoning and problem solving Conditional	Retrieval
Year 6 **Spring** Fractions, decimals, and percentages.  	**I know:** • Decimal and fraction equivalents • fractions as division to support converting between fractions and decimals. • "Per cent" relates to "the number of parts per 100" and that if the whole is split into 100 equal parts, then each part is worth 1%. • Equivalent fractions and percentages. • Equivalent fractions, decimals, and percentages. • Fractions, decimals, and percentages and be ordered. • To calculate the percentage of an amount (one step) • To calculate the percentage of an amount (multi step) • My understanding of percentages will help to find the whole number from a given percentage. **Fluent in Five** Counting in multiples Reading and writing numbers Finding 10, 100 more or less Place value in numbers Negative numbers Mental addition and subtraction Written addition and subtraction Known multiplication and division facts Squares and cubes Order of operations Fractions of numbers Decimals Types of fractions Calculating with fractions. Percentage of numbers.	**I know how to:**	Solve problems involving the calculation of percentages and the use of percentages for comparison.	Geometry (shape) Decimals **Resources/staff subject knowledge:** White Rose Classroom Secrets Thinking Toms NCETM - National Curriculum Resource Tool | NCETM **Vocabulary** Decimal Fraction Percentage Equivalent Converting Calculate Denominator Numerator Compare

	Fluency Declarative/substantive	Methods Procedural/disciplinary	Reasoning and problem solving Conditional	Retrieval
Year 6 **Spring** Perimeter, area and volume.  	**I know:** • The difference between area and perimeter • Area can be calculated by counting squares. • Shapes that have the same area. • To find the area of rectangles and rectilinear shapes. • Counting squares can support finding the area of a triangle. • The formula area = ½ × base x perpendicular height is used to calculate the area of a right-angled triangle. • To find the area of any triangle. • The area of a parallelogram by identifying and using a formula. • To find the volume by multiplying the volume of a single layer by the number of equal layers. • The volume of a cuboid is calculated with the formula: volume of cuboid = length × width × height. **Fluent in Five** Counting in multiples Reading and writing numbers Finding 10, 100 more or less Place value in numbers Negative numbers Mental addition and subtraction Written addition and subtraction Known multiplication and division facts Squares and cubes Order of operations Fractions of numbers Decimals Types of fractions Calculating with fractions. Percentage of numbers.	**I know how to:** Calculate the area of parallelograms and triangles. Calculate, estimate and compare volume of cubes and cuboids using standard units, including cubic centimetres (cm3) and cubic metres (m3), and extending to other units		Geometry (shape) Fractions, decimals and percentages. **Resources/staff subject knowledge:** White Rose Classroom Secrets Thinking Toms NCETM - National Curriculum Resource Tool | NCETM **Vocabulary** Area Perimeter Volume Rectilinear Formula Perpendicular Parallelogram Cuboid

	Fluency Declarative/substantive	Methods Procedural/disciplinary	Reasoning and problem solving Conditional	Retrieval
Year 6 **Spring** Statistics  	**I know:** • To interpret line graphs including those with more than one line. • The importance of a key so duel bar charts can be interpreted. • A whole pie chart represents 100% of the data. • Pie charts show information as part of the whole. • A protractor is needed when constructing a pie chart. • When calculating the mean this is finding an average. **Fluent in Five** Counting in multiples Reading and writing numbers Finding 10, 100 more or less Place value in numbers Negative numbers Mental addition and subtraction Written addition and subtraction Known multiplication and division facts Squares and cubes Order of operations Fractions of numbers Decimals Types of fractions Calculating with fractions. Percentage of numbers.	**I know how to:**	Interpret and construct pie charts and line graphs and use these to solve problems	Geometry (shape) Area, perimeter and volume. **Resources/staff subject knowledge:** White Rose Classroom Secrets Thinking Toms NCETM - National Curriculum Resource Tool | NCETM **Vocabulary** Duel bar charts Line graph Interpret Discrete data Pie charts Protractor Mean Average