


		Algebraic Thinking		Place Value and Proportion	
Autumn	<p>Sequences Describe and continue a sequence given diagrammatically Predict and check the next term(s) of a sequence Represent sequences in tabular and graphical forms</p>	<p>Understand and use algebraic notation Given a numerical input, find the output of a single function machine Use inverse operations to find the input given the output Use diagrams and letters to generalise number operations Use diagrams and letters with single function machines Find the function machine given a simple expression Substitute values into single operation expressions Find numerical inputs and outputs for a series of two function machines Use diagrams and letters with a series of two function machines Find the function machines given a two-step expression Substitute values into two-step expressions Generate sequences given an algebraic rule</p>	<p>Equality and equivalence Understand the meaning of equality Understand and use fact families, numerically and algebraically Solve one-step linear equations involving \pm using inverse operations Solve one-step linear equations involving \times/\div using inverse operations Understand the meaning of like and unlike terms Understand the meaning of equivalence Simplify algebraic expressions by collecting like terms, using the \equiv symbol</p>	<p>Place value and ordering integers and decimals Recognise the place value of any number in an integer up to one billion Understand and write integers up to one billion in words and figures Work out intervals on a number line Position integers on a number line Round integers to the nearest power of ten Compare two numbers using $=, \neq, <, >, \leq, \geq$ Order a list of integers Find the range of a set of numbers Find the median of a set of numbers Understand place value for decimals Position decimals on a number line Compare and order any number up to one billion Round a number to 1 significant figure Write 10, 100, 1000 etc. as powers of ten H Write positive integers in the form $A \times 10^n$ H Investigate negative powers of ten H Write decimals in the form $A \times 10^n$ H</p>	<p>Fraction, decimal and percentage equivalence Represent tenths and hundredths as diagrams Represent tenths and hundredths on number lines Interchange between fractional and decimal number lines Convert between fractions and decimals – tenths and hundredths Convert between fractions and decimals – fifths and quarters Convert between fractions and decimals – eighths and thousandths H Understand the meaning of percentage using a hundred square Convert fluently between simple fractions, decimals and percentages Use and interpret pie charts Represent any fraction as a diagram Represent fractions on number lines Identify and use simple equivalent fractions Understand fractions as division Convert fluently between fractions, decimals and percentages Explore fractions above one, decimals and percentages H</p>

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		Represent one- and two-step functions graphically		
Spring	Applications of Number		Directed Number	Fractional Thinking
	<p>Solving problems with addition & subtraction</p> <p><i>Properties of addition and subtraction</i></p> <p><i>Mental strategies for addition and subtraction</i></p> <p><i>Use formal methods for addition of integers</i></p> <p><i>Use formal methods for addition of decimals</i></p> <p><i>Use formal methods for subtraction of integers</i></p> <p><i>Use formal methods for subtraction of decimals</i></p> <p><i>Choose the most appropriate method: mental strategies, formal written or calculator</i></p> <p><i>Solve problems in the context of perimeter</i></p>	<p>Solving problems with multiplication and division</p> <p><i>Properties of multiplication and division</i></p> <p><i>Understand and use factors</i></p> <p><i>Understand and use multiples</i></p> <p><i>Multiply and divide integers and decimals by powers of 10</i></p> <p><i>Multiply by 0.1 and 0.01 H</i></p> <p><i>Convert metric units</i></p> <p><i>Use formal methods to multiply integers</i></p> <p><i>Use formal methods to multiply decimals</i></p> <p><i>Use formal methods to divide integers</i></p>	<p style="font-weight: bold; color: blue;">Fractions & percentages of amounts</p> <p><i>Find a fraction of a given amount</i></p> <p><i>Use a given fraction to find the whole and/or other fractions</i></p> <p><i>Find a percentage of a given amount using mental methods H</i></p>	<p>Operations and equations with directed number</p> <p><i>Understand and use representations of directed numbers</i></p> <p><i>Order directed numbers using lines and appropriate symbols</i></p> <p><i>Perform calculations that cross zero</i></p> <p><i>Add directed numbers</i></p> <p><i>Subtract directed numbers</i></p> <p><i>Multiplication of directed numbers</i></p> <p><i>Multiplication and division of directed numbers</i></p> <p><i>Use a calculator for directed number calculations</i></p> <p><i>Evaluate algebraic expressions with directed number</i></p> <p><i>Introduction to two-step equations</i></p> <p><i>Solve two-step equations</i></p> <p><i>Use order of operations with directed numbers</i></p> <p><i>Roots of positive numbers H</i></p> <p><i>Explore higher powers and roots H</i></p>

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	<p>Solve financial maths problems Solve problems involving tables and timetables</p> <p>Solve problems with frequency trees</p> <p>Solve problems with bar charts and line charts</p> <p>Add and subtract numbers given in standard form H</p>	<p>Use formal methods to divide decimals</p> <p>Understand and use order of operations</p> <p>Solve problems using the area of rectangles and parallelograms</p> <p>Solve problems using the area of triangles</p> <p>Solve problems using the area of trapezia H</p> <p>Solve problems using the mean</p> <p>Explore multiplication and division in algebraic expressions H</p>			
	Lines and Angles		Reasoning with Number		
Summer	<p>Constructing, measuring and using geometric notation</p> <p>Understand and use letter and labelling conventions including those for geometric figures</p> <p>Draw and measure line segments including geometric figures</p> <p>Understand angles as a measure of turn</p> <p>Classify angles</p> <p>Measure angles up to 180°</p> <p>Draw angles up to 180°</p> <p>Draw and measure angles between 180° and 360°</p>	<p>Developing geometric reasoning</p> <p>Understand and use the sum of angles at a point</p> <p>Understand and use the sum of angles on a straight line</p> <p>Understand and use the equality of vertically opposite angles</p> <p>Know and apply the sum of angles in a triangle</p> <p>Know and apply the sum of angles in a quadrilateral</p> <p>Solve angle problems using properties of triangles and quadrilaterals</p> <p>Solve complex angle problems</p> <p>Find and use the angle sum of any polygon</p>	<p>Developing number sense</p> <p>Know and use mental addition and subtraction strategies for integers</p> <p>Know and use mental multiplication and division strategies for integers</p> <p>Know and use mental arithmetic strategies for decimals</p> <p>Know and use mental arithmetic strategies for fractions</p> <p>Use factors to simplify calculations</p>	<p>Sets and probability</p> <p>Identify and represent sets</p> <p>Interpret and create Venn diagrams</p> <p>Understand and use the intersection of sets</p> <p>Understand and use the union of sets</p> <p>Understand and use the complement of a set H</p> <p>Know and use the vocabulary of probability</p> <p>Generate sample spaces for single events</p>	<p>Prime numbers and proof</p> <p>Find and use multiples</p> <p>Identify factors of numbers and expressions</p> <p>Recognise and identify prime numbers</p> <p>Recognise square and triangular numbers</p> <p>Find common factors of a set of numbers including the HCF</p> <p>Find common multiples of a set of numbers including the LCM</p> <p>Write a number as a product of its prime factors</p>

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White Rose Maths

YEAR 7 CURRICULUM OVERVIEW

<p>Identify perpendicular and parallel lines Recognise types of triangle Recognise types of quadrilateral Identify polygons up to a decagon Construct triangles using SSS Construct triangles using SSS, SAS and ASA</p> <p>Construct more complex polygons Interpret simple pie charts using proportion</p> <p>Interpret pie charts using a protractor Draw pie charts</p>	<p>H Investigate angles in parallel lines Understand and use parallel line angle rules</p> <p>H Use known facts to obtain simple proofs.</p> <p>H</p>	<p>Use estimation as a method for checking mental calculations Use known number facts to derive other facts Use known algebraic facts to derive other facts Know when to use a mental strategy, formal written method or a calculator</p>	<p>Calculate the probability of a single event Understand and use the probability scale Know that the sum of probabilities of all possible outcomes is 1</p>	<p>Use a Venn diagram to calculate the HCF and LCM</p> <p>H Make and test conjectures Use counterexamples to disprove a conjecture</p>
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