National Curriculum Year 6	Ready to Progress	White Rose Workbook & Step	Curriculum Prioritisation materials	NCETM Spine
Number & Place Value				
Counting				
			UNIT 2 Multiples of 1,000	**1.26** Composition and calculation: multiples of 1,000 up to 1,000,000
Represent				
Read, write, order and compare numbers up to **10 000 000** and determine the value of each digit	**6NPV–1** Understand the relationship between powers of 10 from 1 hundredth to 10 million, and use this to make a given number 10, 100, 1,000, 1 tenth, 1 hundredth or 1 thousandth times the size (multiply and divide by 10, 100 and 1,000).	**Autumn 1 - Place Value** 4 – Powers of 10	UNIT 3 Numbers up to 1000000	**1.30** Composition & calculation: numbers up to 10 million
Use Place Value & Compare				
Read, write, order and compare numbers up to **10 000 000** and determine the value of each digit	**6NPV–2** Recognise the place value of each digit in numbers up to 10 million, including decimal fractions, and compose and decompose numbers up to 10 million using standard and non-standard partitioning.	**Autumn 1 Place Value** 1 – Numbers to 1,000,000 2 – Numbers to 10,000,000 3 – Read and write numbers to 10,000,000	UNIT 3 Numbers up to 10000000	**1.30** Composition & calculation: numbers up to 10 million
	6NPV–3 Reason about the location of any number up to 10 million, including decimal fractions, in the linear number system, and round numbers, as appropriate, including in contexts.	**Autumn 1 Place Value** 6 - Compare and order any number 7 - Round any number		
Problems & Rounding				
Use **negative numbers** in context, and calculate intervals across 0		**Autumn 1** 8 - Negative numbers		
Round any whole number to a required degree of accuracy		**Autumn 1** 7 - Round an integer	UNIT 3 Numbers up to 10000000	**1.30** Composition & calculation: numbers up to 10 million
Solve number and practical problems that involve all of the above	**6NPV–4** Divide powers of 10, from 1 hundredth to 10 million, into 2, 4, 5 and 10 equal parts, and read scales/number lines with labelled intervals divided into 2, 4, 5 and 10 equal parts.	**Autumn 1 Place Value** 5 – Number line to 10,000,000 **Autumn 5 Converting Units** 2 – Convert metric measures **Spring 3 Decimals** 5 – Multiply by 10, 100, 1000 6 – Divide by 10, 100, 1000	UNIT 3 Numbers up to 10000000	**1.30** Composition & calculation: numbers up to 10 million
Addition and subtraction				
Calculations				
Perform **mental calculations** including with mixed operations and large numbers		**Autumn 2 + - x ÷** 16 Mental calculations and estimation 17 Reason from known facts	UNIT 1 Calculating using knowledge of structures	**1.28** Common structures and the part–part–whole relationship **1.29** Using equivalence and the compensation property to calculate **2.25** Using compensation to calculate
Solve problems				
Solve addition and subtraction **multi-step problems** in contexts, deciding which operations and methods to use and why		**Autumn 2 + - x ÷** 1 Add and subtract integers	UNIT 3 Numbers up to 10000000	**1.30** Composition & calculation: numbers up to 10 million

Multiply and divide				
Recall, Represent, Use				
identify **common factors, common multiples** and **prime numbers**		**Autumn 2 + - x ÷** 2 Common factors 3 Common multiples 4 Rules of divisibility 5 Primes to 100		
Use **estimation to check answers** to calculations and determine, in the context of a problem, an appropriate degree of accuracy.		**Autumn 2 + - x ÷**		
Calculations				
Multiply multi-digit numbers up to 4 digits by a 2-digit whole number using the formal written method of **long multiplication**	**6AS/MD–2** Use a given additive or multiplicative calculation to derive or complete a related calculation, using arithmetic properties, inverse relationships, and place-value understanding.	**Autumn 2 + - x ÷** 6 Square and cube numbers 7 Multiply up to a 4-digit number by a 2-digit number 8 Solve problems with multiplication	UNIT 5 Multiplication and division	**2.18** Using equivalence to calculate **2.23** Multiplication strategies for larger numbers and long multiplication
Divide numbers up to 4 digits by a 2-digit whole number using the formal written method of **short division**, & interpret remainders as whole number remainders, fractions, or by rounding, as appropriate for the context		**Autumn 2 + - x ÷** 9 Short division 10 Division using factors	UNIT 5 Multiplication and division	**2.24** Division: dividing by two-digit divisors
Divide numbers up to 4 digits by a 2-digit whole number using the formal written method of **long division**, & interpret remainders as whole number remainders, fractions, or by rounding, as appropriate for the context		**Autumn 2 + - x ÷** 11 Introduction to long division 12 Long division with remainders 13 Solve problems with division 14 Solve multi-step problems	UNIT 5 Multiplication and division	
Solve problems				
Solve problems involving addition, subtraction, multiplication and division		**Autumn 2 + - x ÷**		
Order of operations				
Use their knowledge of the **order of operations** to carry out calculations involving the 4 operations		**Autumn 2 + - x ÷** 15 Order of operations	UNIT 12 Order of operations	**2.22** Combining multiplication with addition and subtraction **2.28** Combining division with addition and subtraction
Fractions Decimals Percentages				
Comparing fractions				
Use common factors to **simplify fractions**; use common multiples to express fractions in the same denomination	**6F-1** Recognise when fractions can be simplified and use common factors to simplify fractions.	**Autumn 3 Fractions A** 1 Equivalent fractions simplifying 2 Equivalent fractions on a number line	UNIT 7 Fractions and percentages	
Compare and order fractions, including fractions >1	**6F-2** Express fractions in a common denomination and use this to compare fractions that are similar in value. **6F-3** Compare fractions with different denominators, including fractions greater than 1, using reasoning, and choose between reasoning and common denomination as a comparison strategy.	**Autumn 3 Fractions A** 3 Compare & order (denominator) 4 Compare & order (numerator)	UNIT 7 Fractions and percentages	**3.8** Common denomination: more adding and subtracting **3.9** Multiplying fractions and dividing fractions by a whole number **3.10** Linking fractions, decimals and percentages
Fractions: calculations				
Add and subtract fractions with **different denominators and mixed numbers**, using the concept of equivalent fractions		**Autumn 3 Fractions A** 5 Add and subtract simple fractions 6 Add and subtract any two fractions 7 Add mixed numbers 8 Subtract mixed numbers 9 Multi-step problems	UNIT 7 Fractions and percentages	**3.8** Common denomination: more adding and subtracting

Multiply simple pairs of **proper fractions**, writing the answer in its simplest form		**Autumn 4 Fractions B** 1 Multiply fractions by integers 2 Multiply fractions by fractions	UNIT 7 Fractions and percentages	**3.9** Multiplying fractions and dividing fractions by a whole number
Divide proper fractions by whole numbers		**Autumn 4 Fractions B** 3 Divide a fraction by an integer 4 Divide any fraction by an integer 5 Mixed questions with fractions 6 Fraction of an amount 7 Fraction of an amount - find the whole	UNIT 7 Fractions and percentages	
Fractions: Solve Problems				
Decimals: Recognise and Write				
Identify **the value of each digit** in numbers given to three decimal places		**Spring 3 Decimals** 1 Place value within 1 2 Place value – integers and decimals		
Decimals: Calculations & Problems				
Solve problems which require **answers to be rounded** to specified degrees of accuracy		**Spring 3 Decimals** 3 Round decimals 4 Add and subtract decimals		
Multiply and divide numbers **by 10, 100 and 1,000** giving answers are up to three decimal places		**Spring 3 Decimals** 5 Multiply by 10, 100 and 1,000 6 Divide by 10, 100 and 1,000		
Multiply **one-digit numbers with up to 2 decimal places** by whole numbers		**Spring 3 Decimals** 7 Multiply decimals by integers		
Use **written division** methods in cases where the answer has **up to 2 decimal** places		**Spring 3 Decimals** 8 Divide decimals by integers 9 Multiply and divide decimals in context		
Fractions Decimals & Percentages				
Associate a fraction with division and calculate decimal fraction equivalents for a simple fraction.		**Spring 4 Fractions, Decimals & Percentage** 2 Fractions as division		
Recall and use **equivalences** between simple fractions, decimals and percentages, including in different contexts.		**Spring 4 Fractions, Decimals & Percentage** 1 Decimal and fraction equivalents 3 Understand percentages 4 Fractions to percentages 5 Equivalent fractions, decimals and percentages 6 Order fractions, decimals and percentages	UNIT 7 Fractions and percentages	**3.10** Linking fractions, decimals & percentages
Solve problems involving the calculation of percentages and the **use of percentages for comparison**		**Spring 4 Fractions, Decimals & Percentage** 7 Percentage of an amount – one step 8 Percentage of an amount – multi-step 9 Percentages – missing values		
Ratio and Proportion				
Solve problems involving **the relative sizes of two quantities** where missing values can be found by using integer multiplication and division facts	**6AS/MD-1** Understand that 2 numbers can be related additively or multiplicatively, and quantify additive and multiplicative relationships	**Spring 1 Ratio** 1 – Add or multiply?	UNIT 9 Ratio and proportion	**2.27** Scale factors, ratio and proportional reasoning
	6AS/MD–2 Use a given additive or multiplicative calculation to derive or complete a related calculation, using arithmetic properties, inverse relationships, and place-value understanding	**Autumn 2 + - x ÷** 8 - Solve problems with multiplication 10 - Division using factors 13 - Solve problems with division 14 - Solve multi-step problems 17 - Reason from known facts		
Solve problems involving similar shapes where **the scale factor** is known or can be found	**6AS/MD-3** Solve problems involving ratio relationships.	**Spring 1 Ratio** 5 - Scale drawing 6 - Use scale factors	UNIT 9 Ratio and proportion	

		7 - Similar shapes		
Solve problems involving **unequal sharing and grouping** using knowledge of fractions and multiples.	**6AS/MD-3** Solve problems involving ratio relationships.	**Spring 1 Ratio** 8 - Ratio problems 9 - Proportion problems 10- Recipes	UNIT 9 Ratio and proportion	
Algebra				
Use **simple formulae**		**Spring 2 Algebra** 1 1-step function machines 2 2-step function machines 3 Form expressions 4 Substitution 5 Formulae	UNIT 11 Solving problems with two unknowns	
Generate and describe **linear number sequences**		**Spring 2 Algebra** 6 Form equations		
Express **missing number problems** algebraically		**Spring 2 Algebra** 7 Solve 1-step equations 8 Solve 2-step equations		
Find pairs of numbers that satisfy **an equation with two unknowns**	**6AS/MD-4** Solve problems with 2 unknowns	**Spring 2 Algebra** 9 - Find pairs of values 10 - Solve problems with two unknowns	UNIT 11 Solving problems with two unknowns	**1.31** Problems with two unknowns
Enumerate possibilities of combinations of 2 variables.		**Spring 2 Algebra**	UNIT 11 Solving problems with two unknowns	
Measurement				
Using Measures				
Use, **read, write and convert** between standard units, converting measurements of length, mass, volume and time from a smaller unit of measure to a larger unit, and vice versa, using decimal notation to up to 3 decimal places		**Autumn 5 Converting Units** 1 Metric measures		
Solve problems involving the calculation and conversion of **units of measure**, using decimal notation up to 2 decimal places where appropriate		**Autumn 5 Converting Units** 2 Convert metric measures 3 Calculate with metric measures		**2.29** Decimal place-value knowledge, multiplication & division
Convert between **miles and kilometres**		**Autumn 5 Converting Units** 4 Miles and kilometres 5 Imperial measures		
Time				
Use, **read, write and convert** between standard units, converting measurements of … **time** from a smaller unit of measure to a larger unit, and vice versa		**Autumn 5 Converting Units**		
Perimeter, Area & Volume				
recognise that shapes with the same areas can have different **perimeters** and vice versa		**Spring 5 Area, Perimeter & Volume** 1 - Shapes – same area 2 - Area and perimeter	UNIT 6 Area, perimeter, position and direction	**2.30** Multiplicative contexts: area & perimeter 2
calculate the **area of parallelograms and triangles**		**Spring 5 Area, Perimeter & Volume** 3 - Area of a triangle – counting squares 4 - Area of a right-angled triangle 5 - Area of any triangle 6 - Area of a parallelogram	UNIT 6 Area, perimeter, position and direction	**2.30** Multiplicative contexts: area & perimeter 2
Calculate, estimate and compare **volume of cubes and cuboids** using standard units, including cubic centimetres (cm^3) and cubic metres (m^3), and extending to other units		**Spring 5 Area, Perimeter & Volume** 7 Volume – counting cubes		

Recognise when it is possible to use **formulae for area and volume** of shapes		**Spring 5 Area, Perimeter & Volume** 8 Volume of a cuboid		
Geometry				
2-D Shapes				
Compare and classify geometric shapes based on their properties and sizes	**6G-1** Draw, compose, and decompose shapes according to given properties, including dimensions, angles and area, and solve related problems	**Summer 1 Shape** 1 Measure and classify angles	UNIT 4 Draw, compose and decompose shapes	
Draw 2-D shapes using given dimensions and angles		**Summer 1 Shape** 10 Draw shapes accurately	UNIT 4 Draw, compose and decompose shapes	
Illustrate and name parts of **circles**, including **radius, diameter and circumference** and know that the diameter is twice the radius		**Summer 1 Shape** 9 Circles		
3-D Shapes				
Recognise, describe and **build simple 3-D shapes, i**ncluding making **nets**	**6G-1** Draw, compose, and decompose shapes according to given properties, including dimensions, angles and area, and solve related problems	**Summer 1 Shape** 11 Nets of 3-D shapes	UNIT 4 Draw, compose and decompose shapes	
Angles & Lines				
Recognise angles where they meet at a point, are on a straight line, or are **vertically opposite**, and **find missing angles**.	**6G-1** Draw, compose, and decompose shapes according to given properties, including dimensions, angles and area, and solve related problems	**Summer 1 Shape** 2 Calculate angles 3 Vertically opposite angles 4 Angles in a triangle 5 Angles in a triangle – special cases		
Find unknown angles in any triangles, quadrilaterals and regular polygons		**Summer 1 Shape** 6 Angles in a triangle – missing angles 7 Angles in a quadrilateral 8 Angles in polygons		
Position & Direction				
Describe positions on the full coordinate grid (all **4 quadrants**)		**Summer 2 Position & direction** 1 The first quadrant 2 Read and plot points in four quadrants 3 Solve problems with coordinates	UNIT 6 Area, perimeter, position and direction	
Draw and **translate** simple shapes on the coordinate plane and **reflect** them in the axes.		**Summer 2 Position & direction** 4 Translations 5 Reflections	UNIT 6 Area, perimeter, position and direction	
Statistics				
Present and Interpret				
Interpret and construct **pie charts** and **line graphs** and use these to solve problems		**Spring 6 Statistics** 1 Line graphs 2 Dual bar charts 3 Read and interpret pie charts 4 Pie charts with percentages 5 Draw pie charts	UNIT 8 Statistics	
Solve Problems				
Calculate and interpret the **mean** as an average.		**Spring 6 Statistics** 6 The mean	UNIT 13 Mean average	**2.26** Mean, average and equal shares TP1-4