

MOOR PARK HIGH SCHOOL: CURRICULUM

Key Stage 3 Long Term Planning

Year 7

Faculty Area: Mathematics

Autumn 1 – Algebra			
Transition Unit (1 Week)			
Skills:- Resilience. Determination. Having a positive work ethic. Development of thinking skills. Recognition that is not a failure to make mistakes and get things wrong – the only failure is in giving up and not learning from them. Importance and expectation that they always do their very best. Activities:- Introduction of weekly starter activities. Introduction of weekly homework Baseline testing of pupils.			
Knowledge	Sequences (2 weeks)	Algebraic notation and Substitution (2 weeks)	Expressions and Equations (2 weeks)
Rationale	Students develop confidence in recognising, describing, and extending sequences by identifying how terms change in a variety of contexts, including both increasing and decreasing patterns. They begin with practical and pictorial representations to generate numerical sequences and make predictions, before distinguishing between linear sequences with a constant difference and non-linear sequences that follow different patterns, such as geometric rules. Building on this, students learn to continue sequences by applying common differences or multipliers, describe clear term-to-term rules using precise mathematical language, and use efficient strategies to find missing terms, even when information is not given consecutively (E). Throughout, emphasis is placed on reasoning, clear communication, and selecting appropriate methods to analyse and extend sequences effectively.	Students develop fluency in using function machines, progressing from one-step to two-step processes with both numerical and algebraic inputs. They apply inverse operations to work forwards and backwards, supported by calculators where appropriate to reduce cognitive load and strengthen procedural understanding. Building on this, students are introduced to algebraic notation, using concrete representations to model variables and interpreting expressions accurately, including identifying the operations applied within a function. They practise substituting values into expressions and extend this to two-step functions, recognising the importance of order and the role of brackets in distinguishing between expressions. Finally, students deepen their understanding by analysing and constructing expressions from given outputs, comparing similar forms, and applying substitution confidently, with an emphasis on clear reasoning, accurate notation, and flexible problem-solving.	Students develop a secure understanding of equality and equivalence, recognising that the equals sign represents balance between two expressions rather than a one-directional process. This understanding is reinforced through related facts and fact families, supported by visual models such as bar models, and extended to algebraic contexts by identifying like and unlike terms, including those with negative, fractional, or multiple variables. Students apply these ideas to simplify expressions by collecting like terms, using precise notation and recognising when expressions are equivalent. They then build on this foundation to solve one- and two-step equations using inverse operations, working with a range of equation structures and representations, including bar models and function machines. Throughout, calculators may be used to reduce cognitive load, with emphasis placed on clear reasoning, accurate methods, and a consistent approach to solving increasingly complex algebraic problems.
National Curriculum Content Covered	- Move freely between different numerical, algebraic, graphical and diagrammatic representations - Make and test conjectures about patterns and relationships - Use a calculator and other technologies to calculate results accurately and then interpret them appropriately - Generate terms of a sequence from a term-to-term rule - Recognise arithmetic sequences - Recognise geometric sequences and appreciate other sequences that arise - Extend their understanding of the number system; make connections between number relationships and their graphical representations	- Move freely between different numerical, algebraic, graphical and diagrammatic representations - Use algebra to generalise the structure of arithmetic, including to formulate mathematical relationships - Recognise and use relationships between operations including inverse operations - Model situations or procedures by translating them into algebraic expressions - Substitute numerical values into formulae and expressions (including scientific formulae) rearrange and simplify expressions - Use and interpret algebraic notation, including ab in place of $a \times b$ $3y$ in place of $y + y + y$ and $3 \times y$ a^2 in place of $a \times a$ ab in place of $a \times b$ $\frac{a}{b}$ in place of $a \div b$ - Generate terms of a sequence from a term-to-term rule - Produce graphs of linear functions of one variable	- Use algebra to generalise the structure of arithmetic, including to formulate mathematical relationships - Simplify and manipulate algebraic expressions to maintain equivalence by collecting like terms - Use approximation through rounding to estimate answers - Use algebraic methods to solve linear equations in one variable - Use and interpret algebraic notation, including ab in place of $a \times b$ $3y$ in place of $y + y + y$ and $3 \times y$ a^2 in place of $a \times a$ ab in place of $a \times b$ $\frac{a}{b}$ in place of $a \div b$ - Understand and use the concepts and vocabulary of expressions, equations, inequalities, terms and factors - Recognise and use relationships between operations including inverse operations
Connections to Previous National Curriculum Content in Y6 (Statutory)	- Generate and describe linear number sequences - Use simple formulae - Describe positions on the full coordinate grid (all 4 quadrants)	- Use simple formulae - Generate and describe linear number sequences - Express missing number problems algebraically - Find pairs of numbers that satisfy number sentences involving two unknowns - Enumerate possibilities of combinations of two variables	- Solve problems which require answers to be rounded to specified degrees of accuracy - Express missing number problems algebraically - Find pairs of numbers that satisfy number sentences involving two unknowns - Enumerate possibilities of combinations of two variables
Assessment	White Rose Maths skills checks at the end of each unit (3 during this period)		
Homework	Sparx Maths online homework		
Literacy	Mathematical key terms/vocabulary for each unit. Correct terminology used when answering questions. Read and understand written questions.		
CIAG	Why maths is important? R:\Faculties\Subjects\Maths\2025-2026\Careers Tasks\PIXL Futures - Maths - Year 7 (Short Lesson Starter)		
	TO BE DONE AT THE BEGINNING OF THE YEAR		

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Autumn 2 – Number and Statistics		
Knowledge	Place value, Ordering and Rounding (3 weeks)	Four Operations (2 Weeks)
Rationale	This sequence develops students' understanding of number and place value, beginning with fluency in reading, writing, and interpreting integers, supported by place value knowledge and real-life contexts. Students learn to position and estimate integers on number lines, calculate intervals, and compare and order values using appropriate mathematical notation and language. This understanding is extended to decimals, where students identify place value, interpret their position on number lines, and compare and order values with increasing precision. Students then develop strategies for rounding numbers to varying degrees of accuracy, including integers and decimal places, using number lines to support conceptual understanding. If time allows, the unit concludes with an introduction to powers of 10 (E) and standard form (E), where students explore how large and small numbers can be represented efficiently, interpret and convert between forms, and develop an understanding of negative powers in relation to division and decimal structure (E), laying foundations for further study.	The unit presents a structured approach to developing students' understanding of decimal operations, building on knowledge established in Key Stage 2. It begins with the use of formal column methods for addition and subtraction, supported by place value grids before progressing to more abstract representations. Key emphasis is placed on the accurate alignment of decimals, the use of placeholders, and the development of both written and mental calculation strategies. Students are encouraged to check their work using inverse operations and to apply their skills in meaningful contexts such as money, while also strengthening their conceptual understanding of multiplying and dividing by powers of ten and extending this to decimals such as 0.1 and 0.01 (E). The sequence then develops students' skills in multiplication and division, revisiting familiar methods such as column multiplication, grid methods, and short division, while extending these to include decimal calculations. Students are guided to handle remainders as decimals, use scaling to simplify calculations involving decimal divisors, and apply visual representations such as place value counters and bar models to support understanding (E). The content culminates in strengthening students' grasp of the order of operations, encouraging a conceptual understanding beyond simple mnemonics, and ensuring they can accurately apply operational hierarchies, including the use of brackets, powers, and roots, in increasingly complex calculations.
National Curriculum Content Covered	- Consolidate their understanding of the number system and place value to include decimals - Understand and use place value for decimals, measures and integers of any size - Order positive and negative integers, decimals and fractions; use the number line as a model for ordering of the real numbers; use the symbols =, ≠, <, >, ≤, ≥ - Work interchangeably with terminating decimals and their corresponding fractions - Round numbers to an appropriate degree of accuracy - Describe, interpret and compare observed distributions of a single variable through the median and the range - Interpret and compare numbers in standard form [E]	- Understand and use place value for decimals, measures and integers of any size - Use the four operations, including formal written methods, applied to integers, decimals, proper and improper fractions, and mixed numbers, both positive and negative - Recognise and use relationships between operations including inverse operations - Derive and apply formulae to calculate and solve problems involving perimeter - Construct and interpret appropriate tables, charts and diagrams, including frequency tables, bar charts and pictograms for categorical data, and vertical line (or bar) charts for ungrouped numerical data - Use conventional notation for the priority of operations, including brackets, powers, roots and reciprocals - Work interchangeably with terminating decimals and their corresponding fractions (such as 3.5 and 7/2 or 0.375 and 3/8) Interpret fractions and percentages as operators
Connections to Previous National Curriculum Content in Y6 (Statutory)	- Read, write, order and compare numbers up to 10,000,000 and determine the value of each digit - Round any whole number to a required degree of accuracy - Use negative numbers in context, and calculate intervals across 0 - Solve number and practical problems that involve all the above. - Identify the value of each digit in numbers given to 3 decimal places - Solve problems involving the calculation and conversion of units of measure, using decimal notation up to 3 decimal places where appropriate - Multiply and divide numbers by 10, 100 and 1,000 giving answers up to three decimal places.	- Add and subtract whole numbers with more than 4 digits, including using formal written methods (columnar addition and subtraction). - Solve addition and subtraction multi-step problems in contexts, deciding which operations and methods to use and why. - Multiply multi-digit numbers up to 4 digits by a two-digit whole number using the formal written method of long multiplication - Divide numbers up to 4 digits by a two-digit whole number using the formal written methods of long/short division, and interpret remainders as whole number remainders, fractions, or by rounding, as appropriate for the context - Perform mental calculations, including with mixed operations and large numbers - Use their knowledge of the order of operations to carry out calculations involving the 4 operations - Solve addition and subtraction multi-step problems in contexts, deciding which operations and methods to use and why - Solve problems involving addition, subtraction, multiplication and division - Identify common factors, common multiples and prime numbers - Use estimation to check answers to calculations and determine, in the context of a problem, an appropriate degree of accuracy
Assessment	White Rose Maths skills checks at the end of each unit (2 during this period)	
Homework	Sparx Maths online homework	
Literacy	Mathematical key terms/vocabulary for each unit.	Correct terminology used when answering questions. Read and understand written questions.
CIAG		

MOOR PARK HIGH SCHOOL: CURRICULUM

Autumn 2 – Number and Statistics		
Knowledge	Averages and Range (1 week)	Rounding and Estimation (1 week)
Rationale	This unit develops students' understanding of statistical measures by introducing key averages—mode, mean, and median—alongside the concept of range. Students begin by identifying the mode from sets of data, including both qualitative and quantitative examples, and exploring situations with no mode or multiple modes. The concept of the mean is then developed using concrete representations to support a secure conceptual understanding of equal distribution, before progressing to calculating missing values. Students are subsequently introduced to the median, learning to order data systematically and determine central values in sets with both odd and even numbers, reinforcing connections between different averages throughout. Finally, students explore the range as a measure of spread, distinguishing it from averages and interpreting it within context. They are encouraged to work with both ordered and unordered data and to solve problems involving missing values. The unit culminates in a problem-solving approach that consolidates all key concepts, requiring students to interpret and calculate averages and range across a variety of contexts and representations, including tables and graphs. This ensures a deeper understanding of when and how each measure is most appropriately used to summarise data.	This unit develops students' understanding of rounding and estimation, building on their knowledge of place value. Students begin by learning to round numbers to one significant figure, recognising this as a useful method for simplifying values to their most essential form. They then progress to rounding to two or more significant figures, applying consistent rules for rounding and identifying the importance of the digit following the required level of accuracy. Emphasis is placed on recognising significant digits, including the role of zeros as placeholders within numbers. These skills are reinforced through regular practice and linked to broader mathematical concepts. Students then apply rounding skills to estimate the outcomes of calculations, using approximation to simplify complex problems and assess the reasonableness of answers. They explore estimation across a range of operations and contexts, considering whether results are overestimates or underestimates. This understanding is extended further through problem-solving in realistic scenarios, encouraging reflection on accuracy and suitability. If time allows, students can be introduced to error intervals, using inequality notation to define upper and lower bounds for rounded values (E). Visual representations such as number lines support this understanding, enabling students to interpret and express the range within which the true value lies.
National Curriculum Content Covered	Describe, interpret and compare observed distributions of a single variable through: appropriate graphical representation involving discrete, continuous and grouped data; and appropriate measures of central tendency (mean, mode, median) and spread (range, consideration of outliers)	- Round numbers and measures to an appropriate degree of accuracy [for example, to a number of decimal places or significant figures] - Use approximation through rounding to estimate answers and calculate possible resulting errors expressed using inequality notation $a < x \leq b$
Connections to Previous National Curriculum Content in Y6 (Statutory)	- Read, write, order and compare numbers up to 10,000,000 and determine the value of each digit - Calculate and interpret the mean as an average	- Read, write, order and compare numbers up to 10,000,000 and determine the value of each digit - Round any whole number to a required degree of accuracy - Identify the value of each digit in numbers given to 3 decimal places - Solve problems which require answers to be rounded to specified degrees of accuracy. - Use estimation to check answers to calculations and determine, in the context of a problem, an appropriate degree of accuracy. - Solve problems involving the calculation and conversion of units of measure, using decimal notation up to 3 decimal places where appropriate
Assessment	White Rose Maths skills checks at the end of each unit (2 during this period)	
Homework	Sparx Maths online homework	
Literacy	Mathematical key terms/vocabulary for each unit.	Correct terminology used when answering questions. Read and understand written questions.
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Spring 1 – Number and Statistics

Knowledge	<i>Graphing Data (3 Weeks)</i>	<i>Fractions, Decimals and Percentages (3 weeks)</i>
Rationale	This unit develops students' understanding of data representation and interpretation by building on knowledge from Primary. Students begin by constructing and interpreting pictograms, progressing from simple representations with whole symbols to more complex examples involving fractional symbols and varied keys. They then revisit bar charts, constructing and interpreting them from tally charts and frequency tables, before extending this knowledge to vertical line charts and dual bar charts to compare related data sets. Further development includes composite bar charts, where students interpret totals and sub-categories, ensuring a clear understanding of how different chart types support comparison and analysis. The unit then transitions to graphical representation using coordinate grids and scatter graphs. Students learn to read and plot coordinates accurately before exploring relationships between variables through scatter graphs, identifying types and strengths of correlation and drawing lines of best fit for prediction. This understanding is extended through the interpretation of time series graphs, focusing on trends and variability over time. Finally, students examine non-linear relationships, recognising that not all data follows a straight-line pattern, and develop a deeper understanding of how different graphical representations can be used to identify patterns, relationships and anomalies in data.	This unit develops students' understanding of fractions, decimals and percentages through a carefully sequenced approach rooted in visual and conceptual learning. Students begin by recognising tenths and hundredths using diagrams such as number lines and hundred squares, helping them connect fractional and decimal representations. They then extend this understanding by working with a wider range of fractions, including fifths, quarters, eighths and thousandths, using known equivalences and scaling strategies to support conversion. Alongside this, students develop their understanding of percentages as "per hundred" and practise converting between fractions, decimals and percentages, with a focus on fluency in commonly used values supported by visual models. The unit then focuses on deepening students' understanding of fractions through representation, comparison and equivalence. Students position fractions on number lines, generate equivalent fractions, and compare and order values using efficient strategies such as common denominators or benchmark fractions. They explore fractions as division to strengthen connections with decimals and consolidate their ability to convert between all three forms. If time allows, students apply these skills to values greater than one (E), using both calculator and non-calculator methods, and develop confidence in accurately comparing and ordering numbers by converting them into equivalent forms.
National Curriculum Content Covered	- Construct and interpret appropriate tables, charts, and diagrams, including frequency tables, bar charts, pie charts, and pictograms for categorical data, and vertical line (or bar) charts for ungrouped and grouped numerical data - Work with coordinates in all four quadrants - Describe simple mathematical relationships between two variables (bivariate data) in observational and experimental contexts and illustrate using scatter graphs - Interpret mathematical relationships both algebraically and graphically	- Consolidate their understanding of the number system and place value to include decimals, fractions - Work interchangeably with terminating decimals and their corresponding fractions (such as 3.5 and $\frac{7}{2}$ or 0.375 and $\frac{3}{8}$) - Interpret percentages and percentage changes as a fraction or a decimal - Understand and use place value for decimals, measures and integers of any size - Move freely between different numerical representations [for example, equivalent fractions, fractions and decimals] - Extend their understanding of the number system; make connections between number relationships - Interpret fractions and percentages as operators - Order positive and negative integers, decimals and fractions; use the number line as a model for ordering of the real numbers; use the symbols $=$, $<$, $>$, $\leq$, $\geq$ - Express one quantity as a percentage of another - Define percentage as 'number of parts per hundred', interpret percentages as a fraction or a decimal - Compare two quantities using percentages - Work with percentages greater than 100% - Understand that a multiplicative relationship between two quantities can be expressed as a ratio or a fraction
Connections to Previous National Curriculum Content in Y6 (Statutory)	- Solve comparison, sum and difference problems using information presented in a line graph. - Complete, read and interpret information in tables, including timetables. - Interpret and construct pie charts and line graphs and use these to solve problems. - Describe positions on the full coordinate grid (all four quadrants).	- Use common factors to simplify fractions; use common multiples to express fractions in the same denomination - Compare and order fractions, including fractions greater than 1. - Add and subtract fractions with different denominators and mixed numbers, using the concept of equivalent fractions. - Multiply simple pairs of proper fractions, writing the answer in its simplest form. - Divide proper fractions by whole numbers. - Associate a fraction with division and calculate decimal fraction equivalents for a simple fraction. - Identify the value of each digit in numbers given to three decimal places. - Solve problems which require answers to be rounded to specified degrees of accuracy. - Recall and use equivalences between simple fractions, decimals and percentages, including in different contexts.
Assessment	White Rose Maths skills checks at the end of each unit (2 during this period)	
Homework	Spax Maths online homework	
Literacy	Mathematical key terms/vocabulary for each unit. Correct terminology used when answering questions. Read and understand written questions.	
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Spring 2 –Number, Geometry and Measures

Knowledge	Directed Number (2 weeks)	Fractions and percentages of amounts (2 weeks)	Perimeter and Area (2 weeks)
Rationale	This unit develops students' understanding of directed numbers, beginning with the use of number lines in familiar contexts such as temperature and elevation to distinguish between positive and negative values and recognise symmetry about zero. Students then compare and order directed numbers, including decimals and fractions, using inequality notation and visual models to support reasoning, before extending their understanding to calculations that cross zero. Conceptual understanding is strengthened through strategies such as partitioning and the use of zero pairs with counters. Building on this foundation, students apply the four operations to directed numbers, identifying patterns and relationships and developing fluency in determining the sign of a result. The unit concludes with applying these skills within the order of operations and using calculators effectively, including the correct use of brackets and function keys to ensure accuracy.	This unit develops students' understanding of fractions and percentages in relation to quantities, building on prior Key Stage 2 knowledge. Students begin by calculating fractions of amounts, progressing from unit to non-unit fractions using visual models such as bar models to support understanding, before finding whole amounts from given fractions through scaling and reasoning. They then apply and extend this knowledge to percentages, first through non-calculator methods using key equivalences (e.g. 10%, 25%, 50%), and then through efficient calculator strategies. Students learn to increase and decrease amounts by given percentages, interpret results in context, and solve problems involving finding the whole from a percentage (E), including values greater than one (E). Throughout, emphasis is placed on visual representation, proportional reasoning, and the development of both conceptual understanding and procedural fluency in real-life contexts.	This sequence develops students' understanding of measurement and geometry by revisiting core Key Stage 2 concepts and extending them to more complex applications. Students begin by consolidating their knowledge of metric units of length, selecting appropriate units and converting between them using an understanding of prefixes such as milli-, centi-, and kilo-. This supports subsequent work on perimeter, where students progress from simple shapes to irregular and compound polygons, applying shape properties and notation to improve efficiency and determine unknown side lengths. The focus then shifts to area, with students exploring rectangles and parallelograms through rearrangement and base–height relationships, before extending to triangles and trapezia by deriving and applying relevant formulae. Throughout the unit, calculators are used to support understanding, and learning culminates in problem-solving and, if time allows introductory algebraic representations of area and perimeter (E).
National Curriculum Content Covered	- Order positive and negative integers, decimals and fractions; use the number line as a model for ordering of the real numbers; use the symbols =, <, >, ≤, ≥ - Use the four operations, including formal written methods, applied to integers, both positive and negative - Use conventional notation for the priority of operations, including brackets, powers, roots and reciprocals - Recognise and use relationships between operations including inverse operations - Use a calculator and other technologies to calculate results accurately and then interpret them appropriately - Substitute numerical values into formulae and expressions, including scientific formulae	- Interpret fractions and percentages as operators - Use the four operations, including formal written methods, applied to integers, decimals, proper and improper fractions, and mixed numbers, all both positive and negative - Define percentage as “number of parts per hundred”, interpret percentages and percentage changes as a fraction or a decimal, interpret these multiplicatively, express one quantity as a percentage of another, compare two quantities using percentages, and work with percentages greater than 100% - Solve problems involving percentage change, including percentage increase, decrease and original value problems and simple interest in financial mathematics	- Change freely between related standard units [for example, time, length, area, volume/capacity, mass] - Derive and apply formulae to calculate and solve problems involving perimeter and area of triangles, parallelograms, trapezia, volume of cuboids (including cubes) and other prisms (including cylinders) - Calculate and solve problems involving perimeters of 2-D shapes (including circles), areas of circles and composite shapes - Model situations or procedures by translating them into algebraic expressions or formulae and by using graphs - Understand and use the concepts and vocabulary of expressions, equations, inequalities, terms and factors
Connections to Previous National Curriculum Content in Y6 (Statutory)	- Use negative numbers in context, and calculate intervals across 0 - Use their knowledge of the order of operations to carry out calculations involving the 4 operations	- Recall and use equivalences between simple fractions, decimals and percentages, including in different contexts - Solve problems involving the calculation of percentages [for example, of measures and such as 15% of 360] and the use of percentages for comparison	- Measure and calculate the perimeter of composite rectilinear shapes in centimetres and metres. - Calculate and compare the area of rectangles (including squares), including using standard units (square centimetres and square metres). - Estimate the area of irregular shapes. - Recognise when it is possible to use formulae for area of shapes. - Calculate the area of parallelograms. - Calculate the area of triangles. - Calculate, estimate and compare the area of irregular shapes. - Use, read, write and convert between standard units, converting measurements of length and area where appropriate. - Solve problems involving the calculation and conversion of units of measure, using decimal notation up to three decimal places where appropriate.
Assessment	White Rose Maths skills checks at the end of each unit (3 during this period)		
Homework	Sparx Maths online homework		
Literacy	Mathematical key terms/vocabulary for each unit. Correct terminology used when answering questions. Read and understand written questions.		
CIAG			

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Summer 1 – Number			
Knowledge	Speed, Distance and Time (3 weeks)		Properties of Number (3 weeks)
Rationale	Students develop fluency in converting between units of time, including fractional amounts, using key facts such as 1 minute = 60 seconds, ½ hour = 30 minutes, and 1 second = 1000 milliseconds. Visual representations, particularly bar models, support understanding by making calculations explicit. Prior knowledge from Key Stage 2, such as conversions between days, hours, and months, is reinforced and extended. Students apply these skills in context, including calculations involving cost, duration, and real-life scenarios, with calculators used where appropriate to reduce cognitive load and improve efficiency. Students further build their understanding of time through interpreting timetables, calendars, and real-world contexts, alongside calculating elapsed time using strategies such as number lines. They are introduced to the relationships between speed, distance, and time, focusing initially on conceptual understanding before applying formulae. Representations such as ratio tables and graphs support this learning, including interpreting and constructing distance–time graphs, understanding key features, and linking gradient informally to speed (E). Problem-solving is emphasised throughout, with increasing complexity and a focus on accuracy, efficient strategies, and appropriate use of units.		Students develop their understanding of multiples and factors, building on prior Key Stage 2 knowledge and linking closely to times tables. Multiples are defined as the result of multiplying a number by an integer, with examples used to demonstrate that multiples can include non-integer values. Students learn to verify multiples using division and extend this to algebraic contexts where appropriate. Alongside this, they identify and list factors using systematic strategies, supported by visual representations such as arrays. This foundation leads to recognising prime numbers, understanding their defining properties, and using divisibility rules to test for primality. Students then express numbers as products of their prime factors, using structured methods such as factor trees to organise their work and reinforce key mathematical vocabulary. Building on this, students explore number structures and relationships, including square, cube, and triangular numbers, before progressing to calculating square and cube roots, supported by calculators where necessary. They extend their understanding of powers and roots, including higher powers (E), and develop fluency in applying inverse relationships. This knowledge is applied to finding the highest common factor (HCF) and lowest common multiple (LCM), first through listing methods and then, if time allows, through more advanced techniques such as Venn diagrams using prime factorisation (E). Finally, students may develop flexible approaches to calculation by expressing numbers as products of factors to simplify computations, applying properties such as commutativity to improve efficiency and accuracy (E).
National Curriculum Content Covered	• Use standard units of mass, length, time, money and other measures, including with decimal quantities • Change freely between related standard units [for example, time, length, area, volume/capacity, mass] • Construct and interpret appropriate tables, charts, and diagrams, including frequency tables, bar charts, pie charts, and pictograms for categorical data, and vertical line (or bar) charts for ungrouped and grouped numerical data • Use compound units such as speed, unit pricing and density to solve problems • Model situations or procedures by translating them into algebraic expressions or formulae and by using graphs • Interpret mathematical relationships both algebraically and graphically		• Use the concepts and vocabulary of prime numbers, factors (or divisors), multiples, common factors, common multiples, highest common factor, lowest common multiple, prime factorisation, including using product notation and the unique factorisation property • Simplify and manipulate algebraic expressions to maintain equivalence by: collecting like terms; multiplying a single term over a bracket; taking out common factors; expanding products of two or more binomials • Use integer powers and associated real roots (square, cube and higher), recognise powers of 2, 3, 4, 5 and distinguish between exact representations of roots and their decimal approximations
Connections to Previous National Curriculum Content in Y6	- Solve problems involving the relative sizes of two quantities where missing values can be found by using integer multiplication and division facts. - Solve problems involving the calculation of percentages and the use of percentages for comparison. - Solve problems involving unequal sharing and grouping using knowledge of fractions and multiples. - Solve problems involving the calculation and conversion of units of measure, using decimal notation up to three decimal places where appropriate. - 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 up to three decimal places. - Solve problems involving the calculation of time. - Solve problems which require answers to be rounded to specified degrees of accuracy. - Perform mental calculations, including with mixed operations and large numbers. - Use written methods for addition, subtraction, multiplication and division. - Use simple formulae.		- Solve problems involving addition, subtraction, multiplication and division - Identify common factors, common multiples and prime numbers - Perform mental calculations, including with mixed operations and large numbers
Assessment	White Rose Maths skills checks at the end of each unit (3 during this period)		
Homework	Sparx Maths online homework		
Literacy	Mathematical key terms/vocabulary for each unit.	Correct terminology used when answering questions.	Read and understand written questions.
CIAG			

MOOR PARK HIGH SCHOOL: CURRICULUM

Summer 2 – Number, Geometry and Measures		
Knowledge	Add and Subtract Fractions (3 weeks)	Angles and Polygons (3 weeks)
Rationale	Students consolidate their understanding of fractions by applying knowledge of common factors to simplify fractions and recognise when they are already in their simplest form. Visual models such as bar models and number lines support conceptual understanding when converting between mixed numbers and improper fractions, as well as when adding and subtracting fractions with the same denominator. This is extended to calculations involving integers, where students use strategies such as rewriting whole numbers as fractions or partitioning values. Building on prior knowledge of lowest common multiples, students then progress to adding and subtracting fractions with different denominators, selecting efficient methods to find common denominators and simplifying answers where appropriate. Students further develop fluency by working with mixed numbers, improper fractions, and more complex calculations, including those involving multiple fractions and negative values. They extend their understanding by linking fractions and decimals, selecting the most efficient form for calculations. This progression leads, if time allows, to introductory work with algebraic fractions (E), where students apply the same principles to simple expressions before advancing to substitution and solving equations with fractions (E). Throughout, emphasis is placed on choosing efficient methods, making connections between representations, and applying knowledge accurately in increasingly complex contexts.	Students develop accuracy in drawing and measuring line segments and angles, building on prior knowledge from Key Stage 2. They use rulers and protractors correctly, understanding angles as measures of turn and estimating before measuring to develop a sense of size. Geometric notation is introduced and used precisely, including labelling vertices, naming angles and polygons, and applying appropriate symbols. Core angle facts are consolidated, including angles around a point (360°), angles on a straight line (180°), and vertically opposite angles. Students apply these relationships to calculate unknown angles, supported by clear diagrams, reasoning, and where appropriate, calculators to maintain focus on conceptual understanding. Students further extend their geometric understanding by classifying and analysing polygons, including triangles and quadrilaterals, and applying angle sum facts to solve problems. They develop confidence in identifying parallel and perpendicular lines, using accurate vocabulary and notation, and drawing these relationships precisely. Problem-solving is emphasised through increasingly complex contexts, requiring students to select and justify appropriate angle facts. If time allows, extension tasks include investigating angle relationships in parallel lines (E), deriving interior angle sums of polygons (E), and forming simple proofs (E), encouraging logical reasoning, generalisation, and clear mathematical communication.
National Curriculum Content Covered	- Use the concepts and vocabulary of prime numbers, factors (or divisors), multiples, common factors, common multiples, highest common factor, lowest common multiple, prime factorisation, including using product notation and the unique factorisation property representations [for example, equivalent fractions, fractions and decimals] - Select and use appropriate calculation strategies to solve increasingly complex problems - Use the four operations, including formal written methods, applied to integers, decimals, proper and improper fractions, and mixed numbers, all both positive and negative - Work interchangeably with terminating decimals and their corresponding Fractions - Move freely between different numerical, algebraic, graphical and diagrammatic representations. - Use conventional notation for the priority of operations, including brackets, powers, roots and reciprocals - Use and interpret algebraic notation, including ab in place of $a \times b$ $3y$ in place of $y + y + y$ and $3 \times y$ a^2 in place of $a \times a$ ab in place of $a \times b$ $\frac{a}{b}$ in place of $a \div b$ - Substitute numerical values into formulae and expressions, including scientific formulae - Use algebraic methods to solve linear equations in one variable (including all forms that require rearrangement)	- Draw and measure line segments and angles in geometric figures, including interpreting scale drawings - Describe, sketch and draw using conventional terms and notations: points, lines, parallel lines, perpendicular lines, right angles, regular polygons, and other polygons that are reflectively and rotationally symmetric - Apply the properties of angles at a point, angles at a point on a straight line, vertically opposite angles - Derive and use the sum of angles in a triangle and use it to deduce the angle sum in any polygon, and to derive properties of regular polygons - Derive and illustrate properties of triangles, quadrilaterals, circles, and other plane figures [for example, equal lengths and angles] using appropriate language and technologies - Apply angle facts, triangle congruence, similarity and properties of quadrilaterals to derive results about angles and sides, including Pythagoras' theorem, and use known results to obtain simple proofs - Understand and use the relationship between parallel lines and alternate and corresponding angles - Use language and properties precisely to analyse 2-D shapes - Begin to reason deductively in geometry including using geometrical constructions - Draw and measure line segments and angles in geometric figures, including interpreting scale drawings - Use the standard conventions for labelling sides and angles - Use language and properties precisely to analyse 2-D shapes - Begin to reason deductively in geometry including using geometrical constructions - Use the standard conventions for labelling sides and angles - Derive and illustrate properties of triangles, quadrilaterals, circles, and other plane figures [for example, equal lengths and angles] using appropriate language and technologies - Select appropriate concepts, methods and techniques to apply to unfamiliar and non-routine problems; interpret their solution in the context of the given problem
Connections to Previous National Curriculum Content in Y6	- Use common factors to simplify fractions; use common multiples to express fractions in the same denomination. - Compare and order fractions, including fractions greater than 1. - Add and subtract fractions with different denominators and mixed numbers, using the concept of equivalent fractions. - Associate a fraction with division and calculate decimal fraction equivalents for a simple fraction.	- Draw 2-D shapes using given dimensions and angles - Compare and classify geometric shapes based on their properties and sizes and find unknown angles in any triangles, quadrilaterals, and regular polygons - Recognise angles where they meet at a point, are on a straight line, or are vertically opposite, and find missing angles
Assessment	White Rose Maths skills checks at the end of each unit (3 during this period)	
Homework	Sparx Maths online homework	
Literacy	Mathematical key terms/vocabulary for each unit.	Correct terminology used when answering questions. Read and understand written questions.
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