Year 9 Autumn Half Term 1

Overarching topic: Number - Place value, the four rules, multiples and factors, fractions, percentage increase/decrease	
Why is this topic being studied at this time?	These topics are a continuation of what students studied in Year 9. The topics will prepare students for higher-end GCSE topics.
How does it fit into the wider subject curriculum?	A strong Number skill and fluency helps build the foundation necessary to compute and solve more complex problems in most areas of Mathematics.

	Essential	Core	Ambitious
The Big questions (what questions will students be able to answer with mastery of this topic?)	How will we use all four operations? Do we understand the concept of multiples and factors? Can we complete all four operations? Place value: what is it, how do we use place value in calculations? Can we define percentage: how do we find simple percentages of amounts?	Can we: apply the four operations to written/mental methods? - use negatives in all four operations? -How do we: find LCM/HCF of different numbers? - manipulate fractions? - use increase/decrease a number by a certain percentage? How do we use multiples and factors in calculations?	Can you identify the use percentages and interest rates? What are the real-life uses of multiples and what problem-solving skills are necessary?

The Key skills/techniques	The sophistication and application of skills will become more advanced as students' progress through the essential, core and ambitious knowledge	
	Skill/technique	**How will this skill be developed?**
	Basic percentage recall	Practice/quizzing at the start of the lesson
	Prime factor decomposition	Quizzing and AFL

Year 9 Autumn Half Term 2

Overarching topic: Number - Decimals/Fractions, Angles in polygons, Expressions and formulae, Statistics	
Why is this topic being studied at this time?	Students have studied some aspects of these topics in Year 8 and now are able to consolidate their understanding as well as learning new approaches, especially in regard to algebraic manipulation.
How does it fit into the wider subject curriculum?	The topics students study this half term form the foundation of what they will study later in the year. Students will be able to appreciate and explore the links between different units of work and hence gain a better understanding of Mathematical concepts.

	Essential	Core	Ambitious
The Big questions (what questions will students be able to answer with mastery of this topic?)	What is the link between decimals and fractions? What are the basic angle facts and how do we use them in calculations? What are like terms, how do we collect like terms. What do the terms Mode, Mean and Median mean; how do we find them?	How do we complete all four operations with fractions? What formulae do we need to solve problems involving polygons? How do we factorise quadratic expressions / expand and simplify.	Can you derive and use the formula to solve problems involving polygons? How do we solve problems involving polygons?

	The sophistication and application of skills will become more advanced as students' progress through the essential, core and ambitious knowledge.	
	Skill/technique	**How will this skill be developed?**
The Key skills/techniques	Convert between decimals and fractions.	Practice/quizzing at the start of the lesson
	Basic angle facts recall. Expand/Fractions	Quizzing and AFL

Year 9 Spring Half Term 1

Simplifying expressions, expanding brackets, factorising, substituting into formulae. Handling data: representing data using charts and graphs, calculating averages, and interpreting statistical diagrams.	
Why is this topic being studied at this time?	Studied in Spring 1 to secure both core algebra skills and foundational statistics knowledge. This prepares students for solving multi-step problems across algebra and data handling, key for higher-tier GCSE Maths.
How does it fit into the wider subject curriculum?	Algebra and statistics form two pillars of applied mathematics. Algebraic manipulation is essential for solving equations and modelling situations, while understanding data is crucial for interpreting information in science, geography, and business. Mastery of both areas supports cross-curricular learning and real-world problem-solving.

	Essential	Core	Ambitious
The Big questions (what questions will students be able to answer with mastery of this topic?)	What does it mean to simplify an expression? What is expanding and factorising? How do we calculate the mean, median, and mode? What are the key features of bar charts and pie charts?	How do we expand single and double brackets? How do we factorise expressions? How do we substitute values into a formula? How do we represent data accurately and calculate averages from grouped data?	How can we apply algebraic and statistical skills to real-world GCSE exam problems? How do we decide which method or technique to use in a multi-step question? How do we check the accuracy and reliability of our results?

The Key skills/techniques	The sophistication and application of skills will become more advanced as students' progress through the essential, core and ambitious knowledge	
	Skill/technique	**How will this skill be developed?**
	Key Vocabulary	Expression, Simplify, Expand, Factorise, Substitute, Formula, Term, Variable, Mean, Median, Mode, Range, Frequency, Chart, Graph
	Application	Symbolic manipulation, data handling, statistical analysis, problem-solving with algebra and statistics.

Year 9 Spring Half Term 2

Overarching topics: Perimeter and area of 2D shapes, circles and sectors.	
Why is this topic being studied at this time?	Studied in Spring 2 to consolidate and extend understanding of key geometry skills which underpin both everyday tasks and further GCSE content.
How does it fit into the wider subject curriculum?	Understanding area and perimeter transforms everyday challenges into solvable problems, from calculating how much paint is needed for a wall to designing safe spaces in architecture. These concepts are the building blocks of spatial awareness, a skill used in fields ranging from construction to computer graphics.

	Essential	Core	Ambitious
The Big questions (what questions will students be able to answer with mastery of this topic?)	What is perimeter? What is area? How do we calculate the area of compound shapes?	How do we find the area of triangles, parallelograms, trapezia, circles, and sectors? How do we calculate perimeter including curved shapes?	How can we solve GCSE-style questions involving multi-step problems on area and perimeter? How do we apply correct units and check for accuracy?

The Key skills/techniques	The sophistication and application of skills will become more advanced as students' progress through the essential, core and ambitious knowledge	
	Skill/technique	**How will this skill be developed?**
	Key Vocabulary	Perimeter, Area, Rectangle, Compound Shape, Triangle, Parallelogram, Trapezium, Circle, Sector, Pi
	Application	Geometric calculation, unit conversions, reasoning, problem-solving with shapes.

Year 9 Summer Half Term 1

Overarching topics: Sequences and transformations	
Why is this topic being studied at this time?	Studied in Summer 1 to consolidate geometry skills while introducing algebraic thinking through sequences, preparing for Year 10 graph and function work.
How does it fit into the wider subject curriculum?	"Mathematics is not about numbers, equations, computations, or algorithms: it is about understanding." William Paul Thurston. Transformations teach students how shapes behave in space, a key skill in architecture, design, and art. Sequences unlock the language of patterns, which is at the heart of coding, data science, and finance. Together, these concepts help students build structured thinking and problem-solving abilities that go beyond the classroom.

	Essential	Core	Ambitious
The Big questions (what questions will students be able to answer with mastery of this topic?)	What is a reflection? What is a rotation? How do we describe a transformation? What is a linear sequence?	How do we perform transformations on a coordinate grid? How do we find the nth term of a linear sequence? How do we describe a pattern using algebra?	How can we combine algebraic and geometric skills to solve GCSE exam problems? How do we justify our answers using both diagrams and algebraic rules?

	The sophistication and application of skills will become more advanced as students' progress through the essential, core and ambitious knowledge	
	Skill/technique	**How will this skill be developed?**
The Key skills/techniques	Key Vocabulary	Transformation, Reflection, Rotation, Enlargement, Translation, Sequence, Term, nth Term, Pattern, Rule
	Application	Spatial reasoning, algebraic pattern recognition, transformation fluency, generalisation skills.

Year 9 Summer Half Term 2

Overarching topics: Constructing triangles and loci, calculating volume and surface area of 3D shapes, solving linear equations.

Why is this topic being studied at this time?	Studied in Summer 2 to complete the Year 9 curriculum, reinforcing practical geometry and algebra skills while providing assessment to inform Year 10 preparation.
How does it fit into the wider subject curriculum?	From constructing triangles to calculating the volume of complex shapes, this unit helps students connect practical tasks with abstract thinking. Constructions link directly to technical drawing and engineering, while solving equations underpins finance and data modelling. This half-term bridges pure and applied maths skills, preparing students for real-world problem-solving.

	Essential	Core	Ambitious
The Big questions (what questions will students be able to answer with mastery of this topic?)	What is a locus? How do we construct a triangle accurately? How do we calculate volume? What is a linear equation?	How do we solve linear equations algebraically and graphically? How do we apply volume and surface area formulae to solve problems?	How can we tackle multi-step GCSE exam questions combining these skills? How do we reflect on progress using assessment feedback?

The Key skills/techniques	The sophistication and application of skills will become more advanced as students' progress through the essential, core and ambitious knowledge	
	Skill/technique	**How will this skill be developed?**
	Key Vocabulary	Construction, Loci, Triangle, Volume, Surface Area, Linear Equation, Solve, Assessment, Feedback
	Application	Accurate construction, spatial reasoning, algebraic manipulation, assessment reflection.
