

Year 9 Autumn Half Term 1

Overarching topic: Number - Place value, the four rules, multiples and factors, fractions, percentage increase/decrease

<p>Why is this topic being studied at this time?</p>	<p>These topics are a continuation of what students studied in Year 9. The topics will prepare students for higher-end GCSE topics.</p>
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<p>How does it fit into the wider subject curriculum?</p>	<p>A strong Number skill and fluency helps build the foundation necessary to compute and solve more complex problems in most areas of Mathematics.</p>
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	Essential	Core	Ambitious
<p>The Big questions (what questions will students be able to answer with mastery of this topic?)</p>	<p>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?</p>	<p>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?</p>	<p>Can you identify the use percentages and interest rates? Whaty are the real-life uses of multiples and what problem-solving skills are necessary?</p>

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

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 regards 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.
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	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?
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The Key skills/techniques	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.	
	Skill/technique	How will this skill be developed?
	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.
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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.
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	Essential	Core	Ambitious
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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?
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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: Circumference and area of circles, area of parallelograms and trapezia, volume of prisms and 3D shapes including pyramids, cones and spheres.

<p>Why is this topic being studied at this time?</p>	<p>Studied in Spring 2 to consolidate geometric understanding from Key Stage 3 and deepen knowledge of 2D and 3D shapes, which are critical for tackling GCSE geometry problems involving formula application and multi-step reasoning.</p>
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<p>How does it fit into the wider subject curriculum?</p>	<p>Geometry is a fundamental strand of mathematics that connects classroom learning to the world around us. From designing buildings and bridges to understanding packaging and space in everyday life, knowing how to work with length, area, and volume helps students interpret and solve real-world challenges. This topic nurtures skills needed not only for examinations but also for careers in science, technology, engineering, art, and design.</p>
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	Essential	Core	Ambitious
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<p>The Big questions (what questions will students be able to answer with mastery of this topic?)</p>	<p>What is the circumference of a circle? What is the area of a circle? How do we calculate the area of a parallelogram or trapezium?</p>	<p>How do we calculate the volume of a prism or cylinder? How do we apply formulae for pyramids, cones, and spheres?</p>	<p>How can we solve multi-step problems involving area and volume? How can we justify which formula to use in a GCSE exam context? How can we check the reasonableness of our answer using units?</p>
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<p>The Key skills/techniques</p>	<p>The sophistication and application of skills will become more advanced as students' progress through the essential, core and ambitious knowledge</p>	
	<p>Skill/technique</p>	<p>How will this skill be developed?</p>
	<p>Application</p>	<p>Accurate use of formulae, multi-step problem-solving, spatial reasoning, unit conversions.</p>

Year 9 Summer Half Term 1

Overarching topics: Simplifying expressions, expanding and factorising, solving linear and quadratic equations, plotting and interpreting linear and quadratic graphs.

<p>Why is this topic being studied at this time?</p>	<p>Introduced in Summer 1 to deepen students' fluency in algebra and graph interpretation as they transition towards Year 10 content. This is essential for higher-tier GCSE progression.</p>
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<p>How does it fit into the wider subject curriculum?</p>	<p>Algebra is central to secondary mathematics. Being able to manipulate expressions and interpret graphs supports understanding across number, geometry, and statistics. Whether designing data models, coding algorithms, or engineering structures, the ability to work confidently with equations and graphs is vital.</p>
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	Essential	Core	Ambitious

<p>The Big questions (what questions will students be able to answer with mastery of this topic?)</p>	<p>What does it mean to simplify an expression? What is factorising? How do we plot a linear graph?</p>	<p>How do we expand double brackets? How do we solve linear and quadratic equations? How do we plot a quadratic graph?</p>	<p>How can we interpret real-life contexts from algebraic graphs? How can we use algebra to model practical problems in GCSE exams?</p>
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<p>The Key skills/techniques</p>	<p>The sophistication and application of skills will become more advanced as students' progress through the essential, core and ambitious knowledge</p>	
	<p>Skill/technique</p>	<p>How will this skill be developed?</p>
	<p>Key Vocabulary</p>	<p>Expression, Equation, Linear, Quadratic, Factorise, Expand, Plot, Axis, Roots</p>
	<p>Application</p>	<p>Algebraic manipulation, solving equations, graphical representation, interpretation of graphs.</p>

Year 9 Summer Half Term 2

Overarching topic: Probability	
<p>Why is this topic being studied at this time?</p>	<p>Studied in Summer 2 to consolidate students' understanding of handling data and making predictions, forming a bridge between number, algebra, and real-world problem-solving before moving into Year 10.</p>

<p>How does it fit into the wider subject curriculum?</p>	<p>Probability and statistics underpin many areas of daily life and work. From making informed decisions in finance, sports, and medicine to analysing data trends in science and business, this topic equips students with essential skills for interpreting risk, chance, and data patterns. It also supports critical thinking and numeracy.</p>
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	Essential	Core	Ambitious

The Big questions

(what questions will students be able to answer with mastery of this topic?)

What is probability? How do we list all possible outcomes? What is the mean, median, and mode from a frequency table?

How do we calculate theoretical probability? How do we represent data accurately using bar charts, pie charts, and frequency polygons?

How can we use probability and statistical methods to solve real-world GCSE exam problems? How can we evaluate the reliability of data or predictions?

	The sophistication and application of skills will become more advanced as students' progress through the essential, core and ambitious knowledge	
The Key skills/techniques	Skill/technique	How will this skill be developed?
	Key Vocabulary	Probability, Outcome, Event, Frequency, Mean, Median, Mode, Range, Chart, Graph
	Application	Listing outcomes, calculating probabilities, interpreting and drawing statistical diagrams, analysing data.