TOPIC OVERVIEW DOCUMENT

YEAR 10

TOPIC OVERVIEW:
In this unit you will be developing algebra: Equations require students to understand how to solve for unknown values using inverse operations and balancing techniques. They must be able to manipulate expressions, solve linear equations with unknowns on one or both sides, and apply these skills to real-life and geometric contexts. Inequalities involve understanding the symbols that represent less than, greater than, and their inclusive counterparts. Students must solve inequalities using similar methods to equations, represent solutions on a number line, and interpret inequality notation correctly. Simultaneous Equations involve solving two equations at the same time to find the values of two unknowns.
These topics link directly to Year 11 Maths by providing the algebraic foundation needed to solve more complex equations, inequalities and simultaneous equations. Students will build on these skills when working with quadratics, rearranging formulae, functions, graphs and algebraic problem solving, all of which are important areas of GCSE Maths.

Key Vocabulary (T2)	Key Vocabulary (T3)	Core knowledge	Disciplinary Skills
Solve, apply, explain, justify, manipulate, balance, substitute, rearrange, simplify, evaluate, construct, calculate, recognise, relationship, equivalent, solution, method, strategy, context, unknown, inclusive, simultaneous, expression, notation.	Equation Inequality Intercept Linear equation Substitution	Equations require students to understand how to solve for unknown values using inverse operations and balancing techniques. They must be able to manipulate expressions, solve linear equations with unknowns on one or both sides, and apply these skills to real-life and geometric contexts. Inequalities involve understanding the symbols that represent less than, greater than, and their inclusive counterparts. Students must solve inequalities using similar methods to equations, represent solutions on a number line, and interpret inequality notation correctly. Simultaneous Equations involve solving two equations at the same time to find the values of two unknowns.	Students develop strong algebraic skills by learning to manipulate expressions and solve equations using inverse operations and balancing techniques, including those with unknowns on one or both sides. They strengthen their ability to apply these methods in real-life and geometric contexts, enhancing their problem-solving flexibility. Alongside this, students build confidence working with inequalities by understanding and interpreting inequality symbols, solving them using similar processes to equations, and representing solutions accurately on number lines. These skills support clear mathematical reasoning, precise symbolic manipulation, and the ability to interpret and communicate solutions effectively.

Checkpoint: Vocab/ Knowledge/ Disciplinary skill(s)	What does this assessment look like?	Which disciplinary skills do I need to be successful?
Checkpoint 1: Algebraic manipulation	You will complete a skills check You will be reassessed during the Mastery lesson	You need to recognise algebraic structure, simplify expressions, expand and factorise brackets, collect like terms, substitute values accurately, apply the laws of indices, rearrange expressions, identify equivalent forms, and explain and justify your mathematical reasoning clearly.
Checkpoint 2: Equations, inequalities and formulae	You will complete a skills check You will be reassessed	You need to use inverse operations, balance equations, manipulate algebraic expressions, substitute into formulae, solve equations and

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	during the Mastery lesson	inequalities accurately, represent solutions clearly, and check and justify your reasoning.
Checkpoint 3: Quadratic expressions and equations	You will complete a skills check You will be reassessed during the Mastery lesson	You need to recognise the structure of quadratic expressions, expand and factorise quadratics, solve quadratic equations using appropriate methods, identify roots and solutions, make connections between equations and graphs, check solutions using substitution, and apply logical reasoning to algebraic problems.

Milestone assessment: The average of the following skills checks : Sequences: Understand and use algebraic notation; Equality and equivalence		
Vocab quiz: Intercept Gradient Equation Factor Expand	**Knowledge tasks:** Students will learn how to solve equations to find unknown values, understand and use inequalities, and solve two equations together using simultaneous equations. These skills develop confidence with algebra and help students apply maths to problem-solving, geometry and real-life situations.	**Disciplinary tasks:** Students will develop confidence in algebra by learning how to simplify expressions, solve equations and work with inequalities. They will use these skills to solve problems, represent solutions on number lines and apply algebra to real-life and geometric situations.

How can I **achieve** in this topic?

- Complete tasks on SPARX
- Engage 100% in lessons
- Make good notes/examples in lessons and use them

Further research:

- Home | NRICH
- Maths - BBC Bitesize