TOPIC OVERVIEW DOCUMENT

YEAR 8

TOPIC OVERVIEW:

In Year 8, **Representations and Algebraic Techniques** builds on Year 7 learning by developing students' understanding of algebraic notation, expressions, equations, sequences, graphs and coordinates. Students move from representing simple mathematical relationships to manipulating algebraic expressions, identifying more complex patterns, forming and solving equations, and interpreting graphical representations**.** This strengthens algebraic fluency and helps students make connections between numerical, algebraic and graphical representations, preparing them for more advanced algebra in Year 9 and beyond.

Key Vocabulary (T2)	Key Vocabulary (T3)	Core knowledge	Disciplinary Skills
Interpret, represent, identify, compare, organise, classify, analyse, describe, explain, justify, calculate, estimate, predict, recognise, generate, generalise, apply, solve, simplify, manipulate, construct, relationship, pattern, accurate, method, reasoning, conclusion	Parallel. Perpendicular. Gradient. Quantitative. Qualitative Term. Expression. Simplify. Expand. Linear sequence	Students develop their data-handling and algebraic skills by interpreting coordinates, tables, scatter graphs and Venn diagrams, including recognising correlation and organising data. They also strengthen algebraic fluency by expanding and factorising expressions, solving equations and inequalities, working with sequences and nth terms, and applying the laws of indices. These skills build confidence in interpreting information, reasoning mathematically and manipulating algebra, providing a strong foundation for more advanced mathematics and GCSE problem solving.	Students develop strong mathematical reasoning, problem-solving and communication skills through work with coordinates, data, tables, scatter graphs and Venn diagrams. They also build algebraic fluency by manipulating expressions, solving equations and inequalities, recognising and generalising sequences, and applying index laws. Together, these skills develop accuracy, logical thinking and the ability to identify patterns, interpret information, justify methods and make mathematical generalisations, providing a strong foundation for GCSE Maths.

Checkpoint: Vocab/ Knowledge/ Disciplinary skill(s)	What does this assessment look like?	Which disciplinary skills do I need to be successful?
Checkpoint 1: Working in the Cartesian plane	You will complete a skills check You will be reassessed during the Mastery lesson	You need to interpret, represent, identify, compare, organise and analyse mathematical information. You should be able to recognise patterns, describe relationships, apply methods, solve problems, simplify information, justify your reasoning and explain your conclusions clearly and accurately.
Checkpoint 2: Representing data	You will complete a skills check You will be reassessed during the Mastery lesson	You need to collect, organise, represent and interpret data accurately. You should be able to select appropriate representations, compare information, identify patterns and trends, describe relationships, analyse results, draw conclusions and justify your reasoning clearly.

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Checkpoint 3: Tables and probability	You will complete a skills check You will be reassessed during the Mastery lesson	Students develop skills in organising and interpreting data in tables, calculating probabilities, identifying possible outcomes and recognising patterns. They use these skills to reason logically, solve problems and clearly communicate mathematical conclusions.
Checkpoint 4: Brackets, equations and inequalities	You will complete a skills check You will be reassessed during the Mastery lesson	Students develop skills in manipulating algebraic expressions, expanding brackets, solving equations and inequalities, and using inverse operations. They use these skills to reason logically, work accurately and communicate mathematical methods clearly.
Checkpoint 5: Sequences	You will complete a skills check You will be reassessed during the Mastery lesson	You need to spot and continue patterns, work out rules for sequences, find the nth term and use algebra to describe patterns. You should be able to explain your thinking and use sequence rules to solve problems.
Checkpoint 6; Indices	You will complete a skills check You will be reassessed during the Mastery lesson	You need to understand and use powers and roots, apply the laws of indices, and simplify expressions involving indices. You should be able to recognise patterns, apply index rules accurately and use them to solve problems.

Milestone assessment:
The average of the following skills checks :
Working in the Cartesian plane; Representing data; Tables and probability; Brackets, equations and inequalities; Sequences; Indices

Vocab quiz:	**Knowledge tasks:**	**Disciplinary tasks:**
Parallel. Perpendicular. Gradient. Quantitative. Qualitative Term. Expression. Simplify. Expand. Linear sequence	Students develop confidence in handling data and using algebra. They learn to interpret graphs, tables and diagrams, recognise patterns and relationships, and organise information clearly. They also build key algebra skills, including solving equations and inequalities, working with sequences, and simplifying expressions. Together, these skills provide a strong foundation for Year 9 mathematics and future GCSE problem solving.	Students develop confidence in problem solving and mathematical reasoning through working with data, graphs, diagrams and algebra. They learn to recognise patterns, interpret information, solve equations and communicate their methods clearly. These skills improve accuracy, logical thinking and algebraic fluency, providing a strong foundation for GCSE Maths.

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

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