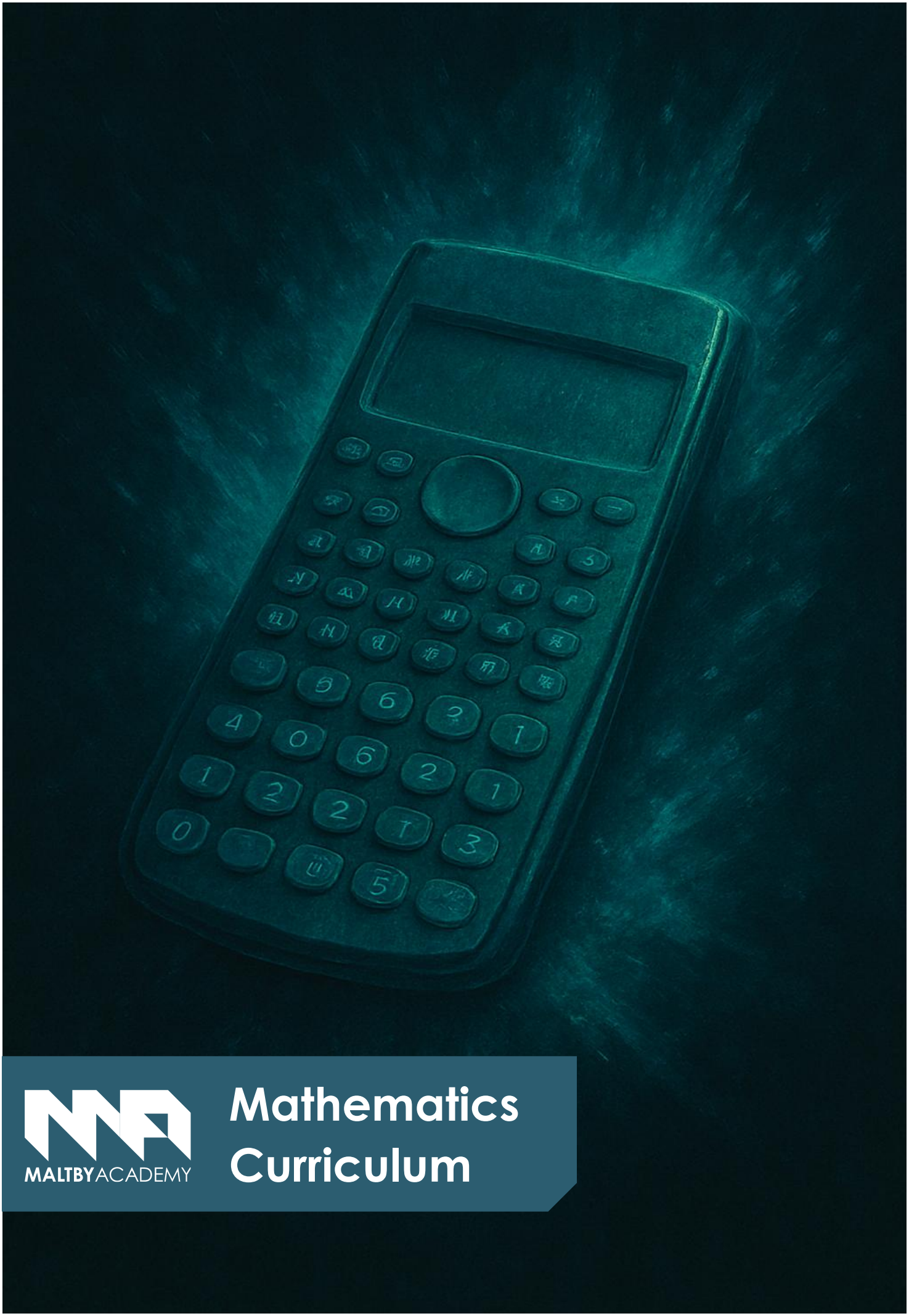

MALTBY ACADEMY

Mathematics Curriculum

Mathematics at Maltby Academy

Introduction

The Maltby Academy curriculum is designed to deliver exceptional learning experiences that enable all young people to thrive academically, personally, and socially. Each subject curriculum is ambitious, coherently planned, and carefully sequenced to ensure that all students develop the knowledge, skills, and character required to succeed in a competitive world. Our key drivers: Teaching & Learning, Personal Development, Careers & CEIAG, Enrichment, and Behaviour & Attitudes underpin every aspect of our curriculum design.

Mathematics - intent statement

The Mathematics curriculum at Maltby Academy provides students with the knowledge, fluency, and problem-solving skills needed to understand and apply mathematics in both academic and real-world contexts. Our sequenced curriculum ensures that core concepts are mastered before extending into higher-order reasoning and application, cultivating resilience and independence. Students are challenged to think logically, work systematically, and apply their learning to complex problems. Mathematics supports our key drivers through rigorous Teaching & Learning, fostering perseverance and critical thinking as part of Personal Development, and preparing students for careers in STEM and beyond. Enrichment opportunities further extend their curiosity and ambition. Mathematics at Maltby Academy equips students not only for academic success but also to thrive in a data-driven, competitive world.

Why do we study Mathematics?

Mathematics equips students with logical thinking, problem-solving skills, and numerical fluency. It helps them make sense of the world, interpret data, and make informed decisions, forming the foundation for countless careers and everyday challenges.

Further Mathematics extends students' understanding of complex mathematical concepts. It develops abstract reasoning, problem-solving, and logical thinking, preparing students for advanced study in mathematics, science, engineering, and related fields.

Qualification

Our Key Stage 4 exam board for Mathematics is AQA. Our Key Stage 5 for Mathematics A-Level is Edexcel and Level 3 Core Maths is AQA.

Key Tier 2 Vocabulary

interpret, calculate, estimate, justify, compare, deduce, evaluate, simplify, represent, construct, verify, demonstrate, model, proportion, accuracy

Disciplinary Requirements

- In line with AQA assessment objectives, students must demonstrate fluency in performing mathematical procedures and applying them to familiar and unfamiliar contexts.
- Reason mathematically by following logical chains of thought, recognising relationships, and drawing justified conclusions.
- Interpret and communicate mathematical information accurately through symbols, diagrams, graphs, and written explanations.
- Evaluate methods and results, checking accuracy and appropriateness in problem-solving.

Vocabulary and Substantive Knowledge Summary

The Mathematics curriculum at Maltby Academy develops fluency, reasoning, and problem-solving through a coherent and connected sequence of learning from Key Stage 3 to Key Stage 5. Students build secure conceptual understanding and procedural competence while deepening their ability to apply mathematical knowledge in increasingly sophisticated and abstract contexts. Mathematical vocabulary, precision, and reasoning underpin all learning and progression.

Key Stage 3 – Mathematics

Vocabulary focus:
Students develop and apply key mathematical terminology including integer, fraction, ratio, equation, expression, variable, angle, perimeter, area, volume, probability, mean, median, mode, range, and gradient. Vocabulary is explicitly modelled to support reasoning, explanation, and written mathematical communication.

Substantive knowledge themes:
• Number and algebraic fluency – consolidating the four operations, negative numbers, fractions, and ratio.
• Algebraic manipulation – forming and solving equations, simplifying expressions, and understanding sequences.
• Geometry and measure – calculating perimeter, area, angles, and exploring transformations and constructions.
• Statistics and probability – collecting, representing, and interpreting data, calculating averages and probability.
• Proportional reasoning – applying ratio, percentage, and scale to solve real-world problems.
• Problem-solving and reasoning – developing persistence, logic, and explanation in multi-step contexts.

Progression goal:
By the end of Key Stage 3, students can confidently use mathematical vocabulary to explain methods, justify reasoning, and connect different areas of mathematics. They demonstrate fluency and accuracy with core procedures and begin to generalise and represent patterns algebraically.

Key Stage 4 – Mathematics

Vocabulary focus:
Students extend their use of academic mathematical vocabulary such as quadratic, simultaneous, trigonometric, hypotenuse, vector, gradient, correlation, histogram, frequency polygon, standard form, and bounds. Emphasis is placed on using precise language to describe processes, relationships, and justifications.

Substantive knowledge themes:
• Algebraic reasoning – manipulating expressions, expanding and factorising quadratics, solving equations and inequalities.
• Geometry and trigonometry – applying theorems, calculating with Pythagoras' Theorem and trigonometric ratios.
• Graphical representation – plotting and interpreting linear, quadratic, and real-world graphs.
• Probability and statistics – interpreting data sets, calculating probabilities, and understanding distributions.

• Ratio, proportion, and rates of change – linking multiplicative reasoning to growth and decay models.
• Mathematical proof and structure – developing logical arguments, justification, and problem-solving strategies.
• Functional mathematics – applying concepts to authentic contexts including finance, measurement, and geometry.

Progression goal:
By the end of Key Stage 4, students can reason mathematically, communicate with precision, and solve multi-step problems using appropriate strategies. They make connections between algebra, geometry, number, and data to model, represent, and interpret real-world situations with accuracy and confidence.

Key Stage 5 – Mathematics

Vocabulary focus:
Students master advanced mathematical terminology including differentiation, integration, logarithm, exponential, modulus, vector, scalar, magnitude, function, transformation, and asymptote. Vocabulary is used fluently within written reasoning and extended problem-solving responses.

Substantive knowledge themes:
• Pure mathematics – exploring proof, algebra, functions, trigonometry, calculus, and coordinate geometry.
• Mechanics – modelling motion using forces, acceleration, and Newton's laws.
• Statistics – analysing data using probability distributions, correlation, and hypothesis testing.
• Mathematical modelling – using mathematics to represent and solve problems in real-world and abstract contexts.
• Proof and reasoning – constructing formal arguments and understanding the limits of models.
• Use of technology – applying graphical and statistical tools to support problem-solving and interpretation.

Progression goal:
By the end of Key Stage 5, students can construct complex mathematical arguments, apply advanced techniques, and communicate reasoning clearly using precise mathematical language. They demonstrate deep conceptual understanding, independence, and confidence in tackling unfamiliar and abstract problems.

Key Stage 5 – Further Mathematics

Vocabulary focus:
Students develop specialist vocabulary associated with higher-level mathematics including complex number, matrix, eigenvalue, eigenvector, vector space, polar coordinate, differential equation, proof by induction, hyperbolic function, and numerical method. Students use precise academic language to explain abstract reasoning and formal proofs.

Substantive knowledge themes:
• Complex numbers – extending the number system to include imaginary and complex roots.
• Matrices and transformations – representing and manipulating linear mappings and systems of equations.
• Further calculus – advanced integration, differential equations, and mathematical modelling.
• Vectors and mechanics – extending vector methods to 3D problems and dynamic systems.
• Proof, logic, and structure – constructing rigorous proofs and exploring underlying mathematical frameworks.
• Applied modules – optional exploration of statistics, mechanics, or decision mathematics at advanced level.

Progression goal:
By the end of Key Stage 5 Further Mathematics, students demonstrate mastery of abstract concepts and deep analytical thinking. They confidently transition to university-level study or careers requiring advanced mathematical reasoning, problem-solving, and modelling skills.

Across Key Stages 3 to 5
The Mathematics and Further Mathematics curriculum provides a clear, connected pathway that builds fluency, reasoning, and problem-solving across increasingly complex domains. Students develop resilience, logical thinking, and the precision required for academic and professional success. By embedding rich mathematical vocabulary and conceptual understanding, the curriculum prepares all learners to thrive in higher education, STEM careers, and an ever-changing world.

Appendix

39-week plans

Tier 3 vocabulary

Mathematics

Year 7

Week 1	Week 2	Week 3	Week 4	Week 5	Week 6	Week 7	Week 8
Sequences	Sequences	Sequences	Understand Algebraic Notation	Understand Algebraic Notation	Equality and Equivalence	Equality and Equivalence	Place Value and Ordering Integers and Decimals
Week 9	**Week 10**	**Week 11**	**Week 12**	**Week 13**	**Week 14**	**Week 15**	**Week 16**
Place Value and Ordering Integers and Decimals	FDP Equivalence	FDP Equivalence	Revision and Assessment	Solving problems with addition and subtraction	Solving problems with addition and subtraction	Review Week	Solving Problems with multiplication and division
Week 17	**Week 18**	**Week 19**	**Week 20**	**Week 21**	**Week 22**	**Week 23**	**Week 24**
Solving Problems with multiplication and division	Fractions and Percentages of Amounts	Operations and equations with directed number	Operations and equations with directed number	Operations and equations with directed number	Addition and Subtraction of Fractions	Addition and Subtraction of Fractions	Addition and Subtraction of Fractions
Week 25	**Week 26**	**Week 27**	**Week 28**	**Week 29**	**Week 30**	**Week 31**	**Week 32**
Revision and Assessment	Constructing, measuring and using Geometric Notation	Constructing, measuring and using Geometric Notation	Constructing, measuring and using Geometric Notation	Develop Geometric Reasoning	Develop Geometric Reasoning	Develop Geometric Reasoning	Developing Number Sense
Week 33	**Week 34**	**Week 35**	**Week 36**	**Week 37**	**Week 38**	**Week 39**	
Developing Number Sense	Sets and Probability	Sets and Probability	Prime Numbers and Proof	Prime Numbers and Proof	Review Week	Review Week	

Mathematics

Year 8

Week 1	Week 2	Week 3	Week 4	Week 5	Week 6	Week 7	Week 8
Ratio & Scale	Ratio & Scale	Ratio & Scale	Multiplicative Change	Multiplicative Change	Multiplicative Change	Multiply & Divide fractions	Multiply & Divide fractions
Week 9	**Week 10**	**Week 11**	**Week 12**	**Week 13**	**Week 14**	**Week 15**	**Week 16**
Working in the Cartesian Plane	Working in the Cartesian Plane	Working in the Cartesian Plane	Representing Data	Representing Data	Tables & Probability	Revision and Assessment	Brackets, Equations & Inequalities
Week 17	**Week 18**	**Week 19**	**Week 20**	**Week 21**	**Week 22**	**Week 23**	**Week 24**
Brackets, Equations & Inequalities	Brackets, Equations & Inequalities	Sequences	Indices	Standard Form	Fractions and Percentages	Fractions and Percentages	Number Sense
Week 25	**Week 26**	**Week 27**	**Week 28**	**Week 29**	**Week 30**	**Week 31**	**Week 32**
Number Sense	Revision & Assessment	Angles in parallel lines & polygons	Angles in parallel lines & polygons	Angles in parallel lines & polygons	Area of Trapezium & Circles	Area of Trapezium & Circles	Area of Trapezium & Circles
Week 33	**Week 34**	**Week 35**	**Week 36**	**Week 37**	**Week 38**	**Week 39**	
Line symmetry and reflection	Data Handling Cycle	Data Handling Cycle	Data Handling Cycle	Measures of location	Measures of location	Review Week	

Mathematics

Year 9

Week 1	Week 2	Week 3	Week 4	Week 5	Week 6	Week 7	Week 8
Straight Line Graphs	Straight Line Graphs	Straight Line Graphs	Forming and Solving Equations	Forming and Solving Equations	Forming and Solving Equations	Testing Conjectures	Testing Conjectures
Week 9	**Week 10**	**Week 11**	**Week 12**	**Week 13**	**Week 14**	**Week 15**	**Week 16**
3D Shapes	3D Shapes	3D Shapes	Constructions and Congruence	Constructions and Congruence	Revision and Assessment	Review Week	Numbers
Week 17	**Week 18**	**Week 19**	**Week 20**	**Week 21**	**Week 22**	**Week 23**	**Week 24**
Numbers	Using Percentages	Using Percentages	Maths and Money	Maths and Money	Deduction	Deduction	Rotation and Translation
Week 25	**Week 26**	**Week 27**	**Week 28**	**Week 29**	**Week 30**	**Week 31**	**Week 32**
Rotation and Translation	Enlargement and Similarity	Enlargement and Similarity	Pythagoras' Theorem	Pythagoras' Theorem	Revision and Assessment	Ratio and Proportion Problems	Ratio and Proportion Problems
Week 33	**Week 34**	**Week 35**	**Week 36**	**Week 37**	**Week 38**	**Week 39**	
Rates	Rates	Probability	Probability	Revision and Assessment	Algebraic Representation	Algebraic Representation	

Mathematics

Year 10 Foundation

Week 1	Week 2	Week 3	Week 4	Week 5	Week 6	Week 7	Week 8
Congruence, similarity and enlargement	Congruence, similarity and enlargement	Congruence, similarity and enlargement	Trigonometry	Trigonometry	Trigonometry	Representing solutions of equations and Inequalities	Representing solutions of equations and Inequalities
Week 9	**Week 10**	**Week 11**	**Week 12**	**Week 13**	**Week 14**	**Week 15**	**Week 16**
Simultaneous Equations	Revision and Assessment	Simultaneous Equations	Simultaneous Equations	Angles and Bearings	Angles and Bearings	Angles and Bearings	Working with Circles
Week 17	**Week 18**	**Week 19**	**Week 20**	**Week 21**	**Week 22**	**Week 23**	**Week 24**
Working with Circles	Working with Circles	Vectors	Vectors	Revision and Assessment	Ratio and Fractions	Ratio and Fractions	Ratio and Fractions
Week 25	**Week 26**	**Week 27**	**Week 28**	**Week 29**	**Week 30**	**Week 31**	**Week 32**
Percentages and Interest	Percentages and Interest	Probability	Probability	Collecting, Representing and Interpreting Data	Collecting, Representing and Interpreting Data	Collecting, Representing and Interpreting Data	Non-Calculator Methods
Week 33	**Week 34**	**Week 35**	**Week 36**	**Week 37**	**Week 38**	**Week 39**	
Non-Calculator Methods	Types of Number and Sequences	Revision and Assessment	Revision and Assessment	Types of Number and Sequences	Indices and Roots	Indices and Roots	

Mathematics

Year 11 Foundation

Week 1	Week 2	Week 3	Week 4	Week 5	Week 6	Week 7	Week 8
Probability	Probability	Volume	Volume	Quadratics, Rearranging formula, Identities	Quadratics, Rearranging formula, Identities	Pythagoras	Pythagoras
Week 9	**Week 10**	**Week 11**	**Week 12**	**Week 13**	**Week 14**	**Week 15**	**Week 16**
Scatter Graphs	Assessment and Revision	Assessment and Revision	Catch Up/CTG	Inequalities	Algebra and Graphs	Algebra and Graphs	Trigonometry
Week 17	**Week 18**	**Week 19**	**Week 20**	**Week 21**	**Week 22**	**Week 23**	**Week 24**
Trigonometry	Simultaneous Equations	Simultaneous Equations	Assessment	Assessment	Catch Up/CTG	Sketching Graphs/Direct and Inverse Proportion	Solve Quadratic Equations
Week 25	**Week 26**	**Week 27**	**Week 28**	**Week 29**	**Week 30**	**Week 31**	**Week 32**
Solve Quadratic Equations	Quadratic Graphs	Growth and Decay/Vectors	Revision	Revision	Revision and Exams	Revision and Exams	Revision and Exams
Week 33	**Week 34**	**Week 35**	**Week 36**	**Week 37**	**Week 38**	**Week 39**	
Revision and Exams	Revision and Exams	Revision and Exams					

Mathematics

Year 10 Higher

Week 1	Week 2	Week 3	Week 4	Week 5	Week 6	Week 7	Week 8
Congruence, similarity and enlargement	Congruence, similarity and enlargement	Congruence, similarity and enlargement	Trigonometry	Trigonometry	Trigonometry	Representing solutions of equations and Inequalities	Representing solutions of equations and Inequalities
Week 9	**Week 10**	**Week 11**	**Week 12**	**Week 13**	**Week 14**	**Week 15**	**Week 16**
Simultaneous Equations	Revision and Assessment	Simultaneous Equations	Simultaneous Equations	Angles and Bearings	Angles and Bearings	Angles and Bearings	Working with Circles
Week 17	**Week 18**	**Week 19**	**Week 20**	**Week 21**	**Week 22**	**Week 23**	**Week 24**
Working with Circles	Working with Circles	Vectors	Vectors	Revision and Assessment	Ratio and Fractions	Ratio and Fractions	Ratio and Fractions
Week 25	**Week 26**	**Week 27**	**Week 28**	**Week 29**	**Week 30**	**Week 31**	**Week 32**
Percentages and Interest	Percentages and Interest	Probability	Probability	Collecting, Representing and Interpreting Data	Collecting, Representing and Interpreting Data	Collecting, Representing and Interpreting Data	Non-Calculator Methods
Week 33	**Week 34**	**Week 35**	**Week 36**	**Week 37**	**Week 38**	**Week 39**	
Non-Calculator Methods	Types of Number and Sequences	Revision and Assessment	Revision and Assessment	Types of Number and Sequences	Indices and Roots	Indices and Roots	

Mathematics

Year 11 Higher

Week 1	Week 2	Week 3	Week 4	Week 5	Week 6	Week 7	Week 8
Probability	Probability	Volume	Volume	Quadratics, Rearranging formula, Identities	Quadratics, Rearranging formula, Identities	Pythagoras	Pythagoras
Week 9	**Week 10**	**Week 11**	**Week 12**	**Week 13**	**Week 14**	**Week 15**	**Week 16**
Scatter Graphs	Assessment and Revision	Assessment and Revision	Catch Up/CTG	Inequalities	Algebra and Graphs	Algebra and Graphs	Trigonometry
Week 17	**Week 18**	**Week 19**	**Week 20**	**Week 21**	**Week 22**	**Week 23**	**Week 24**
Trigonometry	Simultaneous Equations	Simultaneous Equations	Assessment	Assessment	Catch Up/CTG	Sketching Graphs/Direct and Inverse Proportion	Solve Quadratic Equations
Week 25	**Week 26**	**Week 27**	**Week 28**	**Week 29**	**Week 30**	**Week 31**	**Week 32**
Solve Quadratic Equations	Quadratic Graphs	Growth and Decay/Vectors	Revision	Revision	Revision and Exams	Revision and Exams	Revision and Exams
Week 33	**Week 34**	**Week 35**	**Week 36**	**Week 37**	**Week 38**	**Week 39**	
Revision and Exams	Revision and Exams	Revision and Exams					

Mathematics

Year 12 - A-Level

Week 1	Week 2	Week 3	Week 4	Week 5	Week 6	Week 7	Week 8
Algebraic experessions / Measures of location and spread	Algebraic experessions / Measures of location and spread	Algebraic experessions / Measures of location and spread	Quadratics / Representations of data	Quadratics / Representations of data	Equations and inequalities / Representations of data	Equations and inequalities / Data collection	Review week / Data collection
Week 9	**Week 10**	**Week 11**	**Week 12**	**Week 13**	**Week 14**	**Week 15**	**Week 16**
The binomial expansion / Probability	The binomial expansion / Probability	Graphs and transformations / Statistical distributions	Graphs and transformations / Statistical distributions	Co-ordinate geometry / Statistical distributions	Co-ordinate geometry / Correlation	Co-ordinate geometry / Correlation	Algebraic methods / Hypothesis testing
Week 17	**Week 18**	**Week 19**	**Week 20**	**Week 21**	**Week 22**	**Week 23**	**Week 24**
Algebraic methods / Hypothesis testing	Trigonometry / Hypothesis testing	Trigonometry / Hypothesis testing	Trigonometry / Review week	Trigonometry / Review week	Vectors / Modelling in mechanics	Vectors / Modelling in mechanics	Differentiation / Constant acceleration
Week 25	**Week 26**	**Week 27**	**Week 28**	**Week 29**	**Week 30**	**Week 31**	**Week 32**
Differentiation / Constant acceleration	Review week	Differentiation / Constant acceleration	Differentiation / Constant acceleration	Differentiation / Forces and motion	Integration / Forces and motion	Integration / Forces and motion	Integration / Forces and motion
Week 33	**Week 34**	**Week 35**	**Week 36**	**Week 37**	**Week 38**	**Week 39**	
Integration / Variable acceleration	Exponentials and logarithms / Variable acceleration	Exponentials and logarithms / Variable acceleration	Exponentials and logarithms / Variable acceleration	Review week	Review week	Review week	

Mathematics

Year 13 - A Level

Week 1	Week 2	Week 3	Week 4	Week 5	Week 6	Week 7	Week 8
Forces and friction / Algebraic methods	Forces and friction / Trigonometry 1 (Radian Measure)	Projectiles / Trigonometry 1 (Radian Measure)	Projectiles / Trigonometry 1 (Radian Measure)	Moments / Trigonometry 2 (Equations and Identities)	Moments / Trigonometry	Applications of Forces / Trigonometry	Applications of forces / Trigonometry
Week 9	**Week 10**	**Week 11**	**Week 12**	**Week 13**	**Week 14**	**Week 15**	**Week 16**
Functions and Graphs / Trigonometry	Functions and Graphs / Trigonometry	Functions and Graphs / Trigonometry	Functions and Graphs / Binomial expansion	Review week	Differentiation / Binomial expansion	Differentiation / Binomial expansion	Differentiation / Probability
Week 17	**Week 18**	**Week 19**	**Week 20**	**Week 21**	**Week 22**	**Week 23**	**Week 24**
Integration / Probability	Integration / The normal distribution	Integration / The normal distribution	Integration / The normal distribution	Integration / The normal distribution	Further Kinematics / The normal distribution	Further Kinematics / The normal distribution	Parametric equations (including differentiation and integration) / Regression and correlation
Week 25	**Week 26**	**Week 27**	**Week 28**	**Week 29**	**Week 30**	**Week 31**	**Week 32**
Review week	Parametric equations (including differentiation and integration) / Regression and correlation	Vectors / Sequences and series	Vectors / Sequences and series	Numerical methods / Sequences and series	Numerical methods / Sequences and series	Review week	Review week
Week 33	**Week 34**	**Week 35**	**Week 36**	**Week 37**	**Week 38**	**Week 39**	
Paper 1 Wednesday 4th June	Paper 2 Thursday 12th June	Paper 3 Thursday 19th June					

Mathematics

Y12 - Core Maths (AS equivalent)

Week 1	Week 2	Week 3	Week 4	Week 5	Week 6	Week 7	Week 8
Course Introduction	Types of Data, Collecting Data	Numerical Calculations	Percentages	Fermi Estimation	Representing Data Numerically 1	Representing Data Diagrammatically 1	Interest Rates
Week 9	**Week 10**	**Week 11**	**Week 12**	**Week 13**	**Week 14**	**Week 15**	**Week 16**
Equation of a Straight Line	Collecting and Sampling Data	Critical Path Analysis	Critical Path Analysis	Perimeter, Circumference and Area	Similarity and Pythagoras' Theorem	Analyse Critically	Solution to Financial Problems
Week 17	**Week 18**	**Week 19**	**Week 20**	**Week 21**	**Week 22**	**Week 23**	**Week 24**
Solution to Financial Problems	Surface Area and Similarity	Graphical Representation	Repayments and Credit	Representing Data Diagrammatically 2	Representing Data Numerically 2	Expectation	Expectation
Week 25	**Week 26**	**Week 27**	**Week 28**	**Week 29**	**Week 30**	**Week 31**	**Week 32**
Taxation: Value Added Tax (VAT)	Limits of Accuracy	Cost Benefit Analysis	Cost Benefit Analysis	Taxation: Income Tax and National Insurance	Revision for Final Assessments	Paper 1 Exam Window, Revision	Paper 2 Exam Window, Revision
Week 33	**Week 34**	**Week 35**	**Week 36**	**Week 37**	**Week 38**	**Week 39**	

Key Stage 3 – Tier 3 Vocabulary and Definitions

Week	Curriculum Component	Tier 3 Vocabulary	Definition
1	Sequences	**Sequence**	An ordered list of numbers that follow a rule.
1	Sequences	**Term**	Each number in a sequence.
1	Sequences	**Term-to-Term Rule**	A rule that describes how to find the next term.
2	Sequences	**Arithmetic Sequence**	A sequence where each term increases or decreases by the same amount.
2	Sequences	**Linear Sequence**	A sequence that changes by a constant difference.
3	Sequences	**Position-to-Term Rule**	A formula linking a term to its position in the sequence.
4	Understand Algebraic Notation	**Expression**	A combination of numbers, letters, and operations without an equals sign.
4	Understand Algebraic Notation	**Variable**	A letter used to represent an unknown value.
4	Understand Algebraic Notation	**Coefficient**	The number multiplying a variable.
5	Understand Algebraic Notation	**Term**	A single part of an algebraic expression separated by addition or subtraction.
5	Understand Algebraic Notation	**Substitute**	Replacing a variable with a numerical value.
6	Equality and Equivalence	**Equation**	A mathematical statement showing two expressions are equal.
6	Equality and Equivalence	**Equivalent**	Different expressions that have the same value.
7	Equality and Equivalence	**Simplify**	Combining like terms to make an expression shorter.
7	Equality and Equivalence	**Factorise**	Writing an expression as a product of its factors.
8	Place Value and Ordering Integers and Decimals	**Integer**	A whole number that may be positive, negative, or zero.
8	Place Value and Ordering Integers and Decimals	**Place Value**	The value of a digit based on its position in a number.
8	Place Value and Ordering Integers and Decimals	**Negative Number**	A value less than zero.
9	Place Value and Ordering Integers and Decimals	**Ascending Order**	Arranging numbers from smallest to largest.
9	Place Value and Ordering Integers and Decimals	**Descending Order**	Arranging numbers from largest to smallest.
10	FDP Equivalence	**Fraction**	A number representing part of a whole.
10	FDP Equivalence	**Decimal**	A number written using a decimal point.
10	FDP Equivalence	**Percentage**	A fraction expressed per hundred.

Week	Curriculum Component	Tier 3 Vocabulary	Definition
11	FDP Equivalence	**Equivalent Fractions**	Fractions that represent the same value.
11	FDP Equivalence	**Conversion**	Changing between fractions, decimals, and percentages.
13	Solving Problems with Addition and Subtraction	**Addition**	Combining numbers to find a total.
13	Solving Problems with Addition and Subtraction	**Subtraction**	Finding the difference between numbers.
13	Solving Problems with Addition and Subtraction	**Estimate**	An approximate calculation based on reasonable assumptions.
14	Solving Problems with Addition and Subtraction	**Rounding**	Approximating a number to a simpler value.
16	Solving Problems with Multiplication and Division	**Multiplication**	Repeated addition of the same number.
16	Solving Problems with Multiplication and Division	**Division**	Splitting a number into equal groups.
16	Solving Problems with Multiplication and Division	**Product**	The result of multiplication.
17	Solving Problems with Multiplication and Division	**Quotient**	The result of division.
17	Solving Problems with Multiplication and Division	**Inverse Operation**	An operation that reverses the effect of another.
18	Fractions and Percentages of Amounts	**Numerator**	The top number of a fraction showing how many parts are taken.
18	Fractions and Percentages of Amounts	**Denominator**	The bottom number showing how many equal parts make the whole.
18	Fractions and Percentages of Amounts	**Improper Fraction**	A fraction where the numerator is greater than the denominator.
18	Fractions and Percentages of Amounts	**Mixed Number**	A whole number combined with a fraction.
19	Operations and Equations with Directed Number	**Directed Number**	Positive or negative numbers used in calculations.
19	Operations and Equations with Directed Number	**Integer**	Whole numbers including negatives and zero.
20	Operations and Equations with Directed Number	**Equation**	A statement showing two expressions are equal.
21	Operations and Equations with Directed Number	**Solve**	Finding the value of an unknown variable.
22	Addition and Subtraction of Fractions	**Common Denominator**	A shared multiple of the denominators of fractions.

Week	Curriculum Component	Tier 3 Vocabulary	Definition
22	Addition and Subtraction of Fractions	**Equivalent Fraction**	Fractions that represent the same value.
23	Addition and Subtraction of Fractions	**Simplify**	Reducing a fraction to its lowest terms.
26	Constructing, Measuring and Using Geometric Notation	**Angle**	The space between two intersecting lines measured in degrees.
26	Constructing, Measuring and Using Geometric Notation	**Protractor**	A tool used to measure angles.
27	Constructing, Measuring and Using Geometric Notation	**Parallel Lines**	Lines that never meet and remain the same distance apart.
27	Constructing, Measuring and Using Geometric Notation	**Perpendicular Lines**	Lines that meet at a right angle.
28	Constructing, Measuring and Using Geometric Notation	**Polygon**	A 2D shape with straight sides.
29	Develop Geometric Reasoning	**Acute Angle**	An angle smaller than 90°.
29	Develop Geometric Reasoning	**Right Angle**	An angle equal to 90°.
30	Develop Geometric Reasoning	**Obtuse Angle**	An angle between 90° and 180°.
30	Develop Geometric Reasoning	**Reflex Angle**	An angle greater than 180°.
31	Develop Geometric Reasoning	**Symmetry**	When one half of a shape is a mirror image of the other.
32	Developing Number Sense	**Factor**	A number that divides exactly into another number.
32	Developing Number Sense	**Multiple**	The result of multiplying a number by an integer.
33	Developing Number Sense	**Square Number**	A number multiplied by itself.
33	Developing Number Sense	**Cube Number**	A number multiplied by itself three times.
34	Sets and Probability	**Probability**	The likelihood that an event will occur.
34	Sets and Probability	**Outcome**	A possible result of a probability experiment.
35	Sets and Probability	**Sample Space**	The complete set of all possible outcomes.
36	Prime Numbers and Proof	**Prime Number**	A number with exactly two factors: 1 and itself.
36	Prime Numbers and Proof	**Composite Number**	A number with more than two factors.
37	Prime Numbers and Proof	**Highest Common Factor (HCF)**	The largest number that divides exactly into two or more numbers.
37	Prime Numbers and Proof	**Lowest Common Multiple (LCM)**	The smallest number that is a multiple of two or more numbers.

Year 8

Week	Curriculum Component	Tier 3 Vocabulary	Definition
1	Ratio & Scale	**Ratio**	Compares the sizes of two or more values.
1	Ratio & Scale	**Proportion**	A part, share or number considered in relation to a whole.
1	Ratio & Scale	**Equivalent**	Numbers or expressions that are written differently but have the same value.
2	Ratio & Scale	**Simplify**	Rewrite in a simpler or reduced form.
2	Ratio & Scale	**Factor**	A number that divides exactly into another number.
3	Ratio & Scale	**Highest Common Factor (HCF)**	The largest number that divides exactly into two or more numbers.
4	Multiplicative Change	**Conversion**	Changing from one form to another, such as units or measures.
4	Multiplicative Change	**Direct Proportion**	When two quantities increase or decrease at the same rate.
5	Multiplicative Change	**Enlargement**	Increasing or reducing the size of a shape by a scale factor.
5	Multiplicative Change	**Scale Factor**	The number by which dimensions are multiplied in an enlargement.
6	Multiplicative Change	**Similar**	Shapes that have corresponding sides in the same ratio and equal angles.
7	Multiply & Divide Fractions	**Numerator**	The top number in a fraction, showing how many parts are taken.
7	Multiply & Divide Fractions	**Denominator**	The bottom number in a fraction, showing the total number of equal parts.
8	Multiply & Divide Fractions	**Reciprocal**	The number that when multiplied by the original gives 1.
8	Multiply & Divide Fractions	**Unit Fraction**	A fraction with a numerator of 1.
9	Working in the Cartesian Plane	**Axis**	A reference line on a graph used to locate points.
9	Working in the Cartesian Plane	**Coordinate**	An ordered pair showing the position of a point.
10	Working in the Cartesian Plane	**Origin**	The point where the x-axis and y-axis meet, shown as (0,0).
10	Working in the Cartesian Plane	**Quadrant**	One of the four sections of the Cartesian plane.
11	Working in the Cartesian Plane	**Gradient**	The steepness of a line.
12	Representing Data	**Class Interval**	The range of data values within a group.

12	Representing Data	**Discrete**	Data that can only take certain values.
13	Representing Data	**Continuous**	Data that can take any value within a range.
13	Representing Data	**Correlation**	The relationship between two variables.
14	Tables & Probability	**Probability**	The likelihood of an event occurring.
14	Tables & Probability	**Sample Space**	All possible outcomes of an event.
14	Tables & Probability	**Two-Way Table**	Displays two sets of data in rows and columns.
16	Brackets, Equations & Inequalities	**Expression**	A mathematical phrase without an equals sign.
16	Brackets, Equations & Inequalities	**Expand**	Multiply to remove brackets.
17	Brackets, Equations & Inequalities	**Factorise**	Write an expression as a product of factors.
17	Brackets, Equations & Inequalities	**Equation**	A mathematical statement showing two expressions are equal.
18	Brackets, Equations & Inequalities	**Inequality**	A comparison showing one value is greater or less than another.
19	Sequences	**Sequence**	A list of numbers that follow a rule.
19	Sequences	**Linear Sequence**	A sequence with a constant difference between terms.
19	Sequences	**Geometric Sequence**	A sequence where each term is multiplied by a constant.
20	Indices	**Base**	The number that is multiplied by itself in powers.
20	Indices	**Power / Exponent**	Shows how many times a number is multiplied by itself.
20	Indices	**Index / Indices**	Another term for power or exponent.
21	Standard Form	**Standard Form**	A number written as $a \times 10^n$ where $1 \leq a < 10$ and n is an integer.
21	Standard Form	**Reciprocal**	The multiplicative inverse of a number.
22	Fractions and Percentages	**Equivalent**	Values that represent the same amount.
22	Fractions and Percentages	**Multiplier**	A number used to scale another value.
23	Fractions and Percentages	**Original Value**	The amount before a change occurs.
23	Fractions and Percentages	**Profit**	The positive difference between selling and buying prices.
23	Fractions and Percentages	**Loss**	The negative difference between selling and buying prices.
24	Number Sense	**Estimate**	An approximate calculation based on reasonable assumptions.
24	Number Sense	**Significant Figure**	The digits that carry meaningful value in a number.
25	Number Sense	**Discrete Data**	Data that can take only specific values.

27	Angles in Parallel Lines & Polygons	**Alternate Angles**	Angles between parallel lines on opposite sides of a transversal.
27	Angles in Parallel Lines & Polygons	**Corresponding Angles**	Angles in matching positions relative to a transversal.
28	Angles in Parallel Lines & Polygons	**Co-interior Angles**	Angles on the same side of a transversal that add up to 180°.
28	Angles in Parallel Lines & Polygons	**Transversal**	A line that crosses two or more lines.
29	Angles in Parallel Lines & Polygons	**Polygon**	A closed 2D shape with straight sides.
29	Angles in Parallel Lines & Polygons	**Interior Angle**	An angle inside a polygon.
30	Area of Trapezium & Circles	**Area**	The measure of the surface inside a shape.
30	Area of Trapezium & Circles	**Perpendicular Height**	The distance measured at a right angle from base to top.
31	Area of Trapezium & Circles	**Radius**	The distance from the centre of a circle to a point on its edge.
31	Area of Trapezium & Circles	**Diameter**	A line passing through the centre of a circle connecting two points on its edge.
31	Area of Trapezium & Circles	**Pi (π)**	The ratio of the circumference of a circle to its diameter.
32	Area of Trapezium & Circles	**Compound Shape**	A shape made from two or more simple shapes.
33	Line Symmetry and Reflection	**Line of Symmetry**	A line dividing a figure into two mirror-image halves.
33	Line Symmetry and Reflection	**Reflection**	A transformation that flips a shape across a line.
34	Data Handling Cycle	**Questionnaire**	A set of questions used to collect data.
34	Data Handling Cycle	**Biased**	Unfair or unbalanced.
35	Data Handling Cycle	**Mean**	The total of the data divided by the number of values.
35	Data Handling Cycle	**Median**	The middle value when data is ordered.
36	Data Handling Cycle	**Mode**	The most frequent value.
36	Data Handling Cycle	**Range**	The difference between the highest and lowest values.
37	Measures of Location	**Average**	A typical or central value in a set of data.
38	Measures of Location	**Modal Class**	The class interval with the highest frequency.
38	Measures of Location	**Outlier**	A value that differs greatly from others.

Year 9

Week	Curriculum Component	Tier 3 Vocabulary	Definition
1	Straight Line Graphs	**Coordinate**	An ordered pair showing a position on a grid.
1	Straight Line Graphs	**Gradient**	The steepness of a line, calculated as change in y divided by change in x.
2	Straight Line Graphs	**Y-intercept**	The point where a line crosses the y-axis.
2	Straight Line Graphs	**Linear Equation**	An equation representing a straight line.
3	Straight Line Graphs	**Parallel Lines**	Lines that have the same gradient and never meet.
3	Straight Line Graphs	**Perpendicular Lines**	Lines that intersect at right angles.
3	Straight Line Graphs	**Equation of a Line**	A rule describing a line, commonly written as y = mx + c.
4	Forming and Solving Equations	**Equation**	A mathematical statement showing two expressions are equal.
4	Forming and Solving Equations	**Expression**	A combination of numbers, letters and operations without an equals sign.
5	Forming and Solving Equations	**Unknown**	The value that needs to be determined in an equation.
5	Forming and Solving Equations	**Solve**	Find the value that makes the equation true.
6	Forming and Solving Equations	**Inverse Operation**	The opposite operation used to undo a calculation.
6	Forming and Solving Equations	**Expand**	Multiply out brackets in an expression.
6	Forming and Solving Equations	**Factorise**	Write an expression as a product of its factors.
6	Forming and Solving Equations	**Simplify**	Combine like terms to reduce an expression.
7	Testing Conjectures	**Conjecture**	A statement believed to be true but not yet proven.
7	Testing Conjectures	**Counter-example**	An example that proves a conjecture false.
8	Testing Conjectures	**Generalisation**	A rule that applies to all cases of a pattern.
8	Testing Conjectures	**Proof**	A logical argument showing that a statement is always true.
9	3D Shapes	**Face**	A flat surface of a three-dimensional shape.
9	3D Shapes	**Edge**	The line where two faces meet.
10	3D Shapes	**Vertex**	A corner where edges meet.
10	3D Shapes	**Prism**	A solid shape with identical parallel faces.
11	3D Shapes	**Pyramid**	A 3D shape with a polygon base and triangular sides meeting at a point.

Week	Curriculum Component	Tier 3 Vocabulary	Definition
11	3D Shapes	**Cylinder**	A solid with two circular faces and one curved surface.
11	3D Shapes	**Sphere**	A perfectly round three-dimensional object.
11	3D Shapes	**Net**	A 2D shape that folds to form a 3D object.
11	3D Shapes	**Surface Area**	The total area of all faces of a 3D shape.
11	3D Shapes	**Volume**	The amount of space inside a 3D object.
12	Constructions and Congruence	**Compass**	A tool used to draw circles or arcs.
12	Constructions and Congruence	**Bisector**	A line dividing something into two equal parts.
13	Constructions and Congruence	**Perpendicular**	Lines that meet at 90 degrees.
13	Constructions and Congruence	**Congruent Shapes**	Shapes that are identical in size and shape.
13	Constructions and Congruence	**Locus**	A set of points satisfying a particular condition.
13	Constructions and Congruence	**Arc**	A curved part of a circle's circumference.
16	Numbers	**Integer**	A whole number that can be positive, negative or zero.
16	Numbers	**Prime Number**	A number with exactly two factors: 1 and itself.
17	Numbers	**Square Number**	A number multiplied by itself.
17	Numbers	**Cube Number**	A number multiplied by itself three times.
18	Using Percentages	**Percentage**	A fraction expressed out of 100.
18	Using Percentages	**Percentage Change**	The increase or decrease expressed as a percentage.
19	Using Percentages	**Multiplier**	A number used to scale another value when calculating percentages.
19	Using Percentages	**Compound Interest**	Interest calculated on both the original amount and accumulated interest.
20	Maths and Money	**Budget**	A financial plan for income and expenditure.
20	Maths and Money	**Income**	Money received, typically from employment.
21	Maths and Money	**Expenditure**	Money spent on goods or services.
21	Maths and Money	**Profit**	The amount gained when income exceeds costs.
21	Maths and Money	**Loss**	The amount by which costs exceed income.
21	Maths and Money	**Tax**	Money paid to the government based on income or purchases.

Week	Curriculum Component	Tier 3 Vocabulary	Definition
22	Deduction	**Deduction**	Using logic to reach a conclusion.
22	Deduction	**Theorem**	A statement proven using logical reasoning.
23	Deduction	**Corollary**	A result that follows directly from a theorem.
23	Deduction	**Geometrical Reasoning**	Using known properties of shapes to justify solutions.
24	Rotation and Translation	**Transformation**	A change in position, size or orientation of a shape.
24	Rotation and Translation	**Translation**	Moving a shape without rotating or resizing it.
25	Rotation and Translation	**Rotation**	Turning a shape about a fixed point.
25	Rotation and Translation	**Centre of Rotation**	The point about which a shape rotates.
25	Rotation and Translation	**Angle of Rotation**	The amount of turn measured in degrees.
25	Rotation and Translation	**Reflection**	Flipping a shape across a mirror line.
25	Rotation and Translation	**Vector**	A quantity with both direction and magnitude.
26	Enlargement and Similarity	**Enlargement**	Increasing or reducing a shape by a scale factor.
26	Enlargement and Similarity	**Scale Factor**	The multiplier used to enlarge or reduce shapes.
27	Enlargement and Similarity	**Centre of Enlargement**	The fixed point from which enlargement occurs.
27	Enlargement and Similarity	**Similar Shapes**	Shapes with equal angles and proportional sides.
28	Pythagoras' Theorem	**Right-Angled Triangle**	A triangle containing a 90° angle.
28	Pythagoras' Theorem	**Hypotenuse**	The longest side opposite the right angle.
29	Pythagoras' Theorem	**Adjacent Side**	The side next to the chosen angle.
29	Pythagoras' Theorem	**Opposite Side**	The side opposite the chosen angle.
29	Pythagoras' Theorem	**Pythagoras' Theorem**	In a right triangle, $a^2 + b^2 = c^2$.
31	Ratio and Proportion Problems	**Ratio**	A comparison between two quantities.
31	Ratio and Proportion Problems	**Direct Proportion**	When one quantity increases at the same rate as another.
32	Ratio and Proportion Problems	**Inverse Proportion**	When one quantity increases as another decreases.
32	Ratio and Proportion Problems	**Unit Rate**	The amount per single unit of measurement.
33	Rates	**Rate**	A comparison between two quantities with different units.
34	Rates	**Unit Rate**	The value per one unit of measure.
35	Probability	**Probability**	The likelihood that an event will occur.

Week	Curriculum Component	Tier 3 Vocabulary	Definition
35	Probability	**Outcome**	A possible result of an experiment.
36	Probability	**Event**	A set of outcomes in a probability experiment.
36	Probability	**Sample Space**	All possible outcomes of an experiment.
36	Probability	**Mutually Exclusive Events**	Events that cannot occur simultaneously.
36	Probability	**Theoretical Probability**	Probability based on reasoning or calculation.
36	Probability	**Experimental Probability**	Probability determined through experiment or trials.
36	Probability	**Fair Test**	A test where all outcomes are equally likely.
38	Algebraic Representation	**Expression**	A mathematical phrase containing numbers and variables.
38	Algebraic Representation	**Equation**	A statement showing two expressions are equal.
38	Algebraic Representation	**Inequality**	A comparison showing one quantity is larger or smaller than another.
39	Algebraic Representation	**Substitute**	Replace a variable with a value.
39	Algebraic Representation	**Expand**	Multiply out brackets in algebra.
39	Algebraic Representation	**Factorise**	Write an expression as a product of factors.
39	Algebraic Representation	**Term**	A single part of an algebraic expression.
39	Algebraic Representation	**Coefficient**	The number multiplying a variable.

Key Stage 4 – Tier 3 Vocabulary and Definitions

Year 10

Week	Curriculum Component	Tier 3 Vocabulary	Definition
1	Congruence, Similarity and Enlargement	**Congruent**	Shapes that are exactly the same shape and size.
1	Congruence, Similarity and Enlargement	**Similar**	Shapes with equal angles and sides in the same ratio.
1	Congruence, Similarity and Enlargement	**Scale Factor**	The multiplier used to enlarge or reduce a shape.
2	Congruence, Similarity and Enlargement	**Enlargement**	A transformation that changes the size of a shape using a scale factor.
2	Congruence, Similarity and Enlargement	**Included Angle**	The angle between two given sides.
3	Congruence, Similarity and Enlargement	**Hypotenuse**	The side opposite the right angle in a right-angled triangle.
3	Congruence, Similarity and Enlargement	**Adjacent Side**	The side next to the given angle (not the hypotenuse).
3	Congruence, Similarity and Enlargement	**Opposite Side**	The side opposite the given angle.
4	Trigonometry	**Sine**	A trigonometric ratio equal to opposite ÷ hypotenuse.
4	Trigonometry	**Cosine**	A trigonometric ratio equal to adjacent ÷ hypotenuse.
5	Trigonometry	**Tangent**	A trigonometric ratio equal to opposite ÷ adjacent.
5	Trigonometry	**Sine Rule**	A rule relating sides and angles in any triangle.
6	Trigonometry	**Cosine Rule**	A rule used to calculate sides or angles in any triangle.
7	Representing Solutions of Equations and Inequalities	**Expression**	A mathematical phrase containing numbers, variables and operations.
7	Representing Solutions of Equations and Inequalities	**Equation**	A mathematical statement showing two expressions are equal.
8	Representing Solutions of Equations and Inequalities	**Identity**	An equation that is true for all values of the variable.
8	Representing Solutions of Equations and Inequalities	**Inequality**	A comparison showing that two expressions are not equal.
9	Simultaneous Equations	**Linear Equation**	An equation where the highest power of the variable is one.
9	Simultaneous Equations	**Solution**	A value that satisfies an equation.

Week	Curriculum Component	Tier 3 Vocabulary	Definition
11	Simultaneous Equations	**Simultaneous Equations**	Two or more equations solved together.
11	Simultaneous Equations	**Substitute**	Replace a variable with a numerical value.
12	Simultaneous Equations	**Rearrange**	Change the subject of a formula.
12	Simultaneous Equations	**Subject of a Formula**	The variable isolated on one side of an equation.
13	Angles and Bearings	**Alternate Angles**	Angles between parallel lines on opposite sides of a transversal.
13	Angles and Bearings	**Corresponding Angles**	Angles in the same relative position at intersections.
14	Angles and Bearings	**Co-Interior Angles**	Angles on the same side of a transversal that add to 180°.
14	Angles and Bearings	**Transversal**	A line that crosses two or more lines.
15	Angles and Bearings	**Bearing**	A direction measured clockwise from north.
15	Angles and Bearings	**Parallel**	Lines that never meet and stay the same distance apart.
16	Working with Circles	**Arc**	A part of the circumference of a circle.
16	Working with Circles	**Chord**	A straight line joining two points on a circle.
17	Working with Circles	**Radius**	The distance from the centre of a circle to the circumference.
17	Working with Circles	**Diameter**	The distance across a circle through the centre.
18	Working with Circles	**Sector**	A region of a circle formed by two radii and an arc.
18	Working with Circles	**Segment**	The region between a chord and an arc.
18	Working with Circles	**Tangent**	A line touching a circle at exactly one point.
18	Working with Circles	**Cyclic Quadrilateral**	A quadrilateral with all vertices on a circle.
19	Vectors	**Vector**	A quantity with magnitude and direction.
19	Vectors	**Column Vector**	A vector written vertically in brackets.
20	Vectors	**Magnitude**	The length or size of a vector.
20	Vectors	**Scalar**	A quantity with magnitude only.
20	Vectors	**Resultant**	The combined effect of two or more vectors.
20	Vectors	**Parallel Vectors**	Vectors that have the same direction.
20	Vectors	**Collinear**	Points or vectors lying on the same straight line.
22	Ratio and Fractions	**Ratio**	A comparison between two quantities.
22	Ratio and Fractions	**Proportion**	A statement that two ratios are equal.

Week	Curriculum Component	Tier 3 Vocabulary	Definition
23	Ratio and Fractions	**Equivalent**	Different expressions with the same value.
23	Ratio and Fractions	**Unit Cost**	The cost of one item.
24	Ratio and Fractions	**Multiplier**	A number used to increase or decrease by a percentage.
25	Percentages and Interest	**Simple Interest**	Interest calculated only on the original amount.
25	Percentages and Interest	**Compound Interest**	Interest calculated on the running total.
26	Percentages and Interest	**Principal**	The original amount of money invested or borrowed.
26	Percentages and Interest	**Depreciation**	A decrease in value over time.
26	Percentages and Interest	**Reverse Percentage**	Finding the original value before a percentage change.
26	Percentages and Interest	**Original Value**	The value before a percentage change.
27	Probability	**Probability**	A measure of how likely an event is to occur.
27	Probability	**Outcome**	A possible result of an experiment.
28	Probability	**Event**	What happens in a probability experiment.
28	Probability	**Sample Space**	The set of all possible outcomes.
28	Probability	**Relative Frequency**	An experimental estimate of probability.
28	Probability	**Expected Outcomes**	Predicted number of times an event should occur.
28	Probability	**Independent Events**	Events where one does not affect the other.
28	Probability	**Dependent Events**	Events where one affects the probability of another.
28	Probability	**Conditional Probability**	Probability given that another event has occurred.
29	Statistics	**Population**	The entire group being studied.
29	Statistics	**Sample**	A subset of a population.
30	Statistics	**Frequency**	The number of times a value occurs.
30	Statistics	**Cumulative Frequency**	A running total of frequencies.
31	Statistics	**Mean**	The average value of a data set.
31	Statistics	**Median**	The middle value when data is ordered.
31	Statistics	**Mode**	The most frequently occurring value.
31	Statistics	**Range**	The difference between highest and lowest values.
31	Statistics	**Interquartile Range**	The spread of the middle 50% of data.

Week	Curriculum Component	Tier 3 Vocabulary	Definition
31	Statistics	**Correlation**	The relationship between two variables.
31	Statistics	**Line of Best Fit**	A line showing the trend of data.
31	Statistics	**Extrapolation**	Predicting values outside the data range.
33	Non-Calculator Methods	**Integer**	A positive or negative whole number.
34	Types of Number and Sequences	**Irrational Number**	A number that cannot be written as a fraction.
34	Types of Number and Sequences	**Surd**	An irrational root that cannot be simplified.
37	Types of Number and Sequences	**Upper Bound**	The greatest possible value after rounding.
37	Types of Number and Sequences	**Lower Bound**	The smallest possible value after rounding.
37	Types of Number and Sequences	**Error Interval**	The range of values a rounded number represents.
38	Indices and Roots	**Index / Exponent**	The power to which a number is raised.
38	Indices and Roots	**Base**	The number being raised to a power.
39	Indices and Roots	**Standard Form**	A number written as $A \times 10^n$.
39	Indices and Roots	**Rationalise**	Remove a surd from the denominator.

Year 11

Week	Curriculum Component	Tier 3 Vocabulary	Definition
1	Probability	**Probability**	A measure of how likely an event is to occur.
1	Probability	**Outcome**	A possible result of a probability experiment.
1	Probability	**Event**	A set of outcomes from an experiment.
2	Probability	**Sample Space**	The set of all possible outcomes.
2	Probability	**Independent Events**	Events where one does not affect the probability of another.
2	Probability	**Relative Frequency**	An experimental estimate of probability based on trials.
3	Volume	**Volume**	The amount of space inside a 3D shape.
3	Volume	**Density**	Mass per unit volume.
4	Volume	**Prism**	A solid shape with identical parallel ends.
4	Volume	**Cylinder**	A 3D shape with two circular faces and one curved surface.
5	Quadratics, Rearranging Formula, Identities	**Quadratic**	An expression where the highest power of the variable is two.
5	Quadratics, Rearranging Formula, Identities	**Expression**	A collection of numbers, variables and operations without an equals sign.

Week	Curriculum Component	Tier 3 Vocabulary	Definition
6	Quadratics, Rearranging Formula, Identities	**Identity**	An equation that is true for all values of the variable.
6	Quadratics, Rearranging Formula, Identities	**Factorise**	Write an expression as a product of factors.
7	Pythagoras	**Hypotenuse**	The longest side in a right-angled triangle.
7	Pythagoras	**Opposite Side**	The side opposite the chosen angle in a triangle.
8	Pythagoras	**Adjacent Side**	The side next to the chosen angle in a triangle.
8	Pythagoras	**Pythagoras' Theorem**	In a right triangle, $a^2 + b^2 = c^2$.
9	Scatter Graphs	**Correlation**	A relationship between two variables.
9	Scatter Graphs	**Line of Best Fit**	A line showing the general trend of data.
9	Scatter Graphs	**Outlier**	A value that lies far from the rest of the data.
13	Inequalities	**Inequality**	A comparison showing that two expressions are not equal.
13	Inequalities	**Solve**	Find the values that satisfy an equation or inequality.
14	Algebra and Graphs	**Gradient**	The steepness of a straight line.
14	Algebra and Graphs	**Intercept**	The point where a graph crosses an axis.
15	Algebra and Graphs	**Linear**	A relationship forming a straight line graph.
15	Algebra and Graphs	**Quadratic Graph**	A graph forming a parabola.
16	Trigonometry	**Sine**	A trigonometric ratio equal to opposite ÷ hypotenuse.
16	Trigonometry	**Cosine**	A trigonometric ratio equal to adjacent ÷ hypotenuse.
17	Trigonometry	**Tangent**	A trigonometric ratio equal to opposite ÷ adjacent.
17	Trigonometry	**Right Angle**	An angle measuring exactly 90°.
18	Simultaneous Equations	**Simultaneous Equations**	Two or more equations solved at the same time.
18	Simultaneous Equations	**Substitute**	Replace a variable with a numerical value.
19	Simultaneous Equations	**Variable**	A symbol representing a value that can change.
19	Simultaneous Equations	**Coefficient**	The number multiplying a variable.
23	Sketching Graphs / Proportion	**Direct Proportion**	A relationship where quantities increase at the same rate.
23	Sketching Graphs / Proportion	**Inverse Proportion**	A relationship where one value increases as another decreases.
24	Solve Quadratic Equations	**Root**	A value that makes an equation equal zero.

Week	Curriculum Component	Tier 3 Vocabulary	Definition
24	Solve Quadratic Equations	**Parabola**	A U-shaped curve representing a quadratic graph.
25	Solve Quadratic Equations	**Expand**	Multiply expressions to remove brackets.
25	Solve Quadratic Equations	**Factorise**	Rewrite an expression as a product of factors.
26	Quadratic Graphs	**Axis of Symmetry**	A line dividing a parabola into mirror images.
26	Quadratic Graphs	**Vertex**	The highest or lowest point on a parabola.
27	Growth, Decay and Vectors	**Vector**	A quantity with magnitude and direction.
27	Growth, Decay and Vectors	**Column Vector**	A vector written vertically in brackets.
27	Growth, Decay and Vectors	**Scale Factor**	The multiplier used in enlargement or growth.
27	Growth, Decay and Vectors	**Growth**	An increase by a constant multiplier over time.
27	Growth, Decay and Vectors	**Decay**	A decrease by a constant multiplier over time.
33	Revision Topics	**Sequence**	An ordered list of numbers following a rule.
33	Revision Topics	**Term**	A single part of an expression or sequence.
34	Revision Topics	**Equation**	A mathematical statement showing two expressions are equal.
34	Revision Topics	**Substitute**	Replace variables with numbers.
35	Revision Topics	**Transformation**	A change in position or size of a shape.
35	Revision Topics	**Reflection**	A mirror image of a shape across a line.

Key Stage 5 – Tier 3 Vocabulary and Definitions

Year 12

Week	Curriculum Component	Tier 3 Vocabulary	Definition
1	Algebraic expressions / Measures of location and spread	**Base**	The number or expression affected by a power.
1	Algebraic expressions / Measures of location and spread	**Index / Exponent**	The value showing how many times the base is used as a factor.
1	Algebraic expressions / Measures of location and spread	**Surd**	The square root of a non-square number.
2	Algebraic expressions / Measures of location and spread	**Rational**	A number that can be written as a fraction of integers.
2	Algebraic expressions / Measures of location and spread	**Irrational**	A number with a non-terminating, non-recurring decimal.
2	Algebraic expressions / Measures of location and spread	**Rationalise**	Rewrite an expression so the denominator is rational.
3	Algebraic expressions / Measures of location and spread	**Quadratic**	An expression of the form $ax^2 + bx + c$ where $a \neq 0$.
3	Algebraic expressions / Measures of location and spread	**Roots**	The solutions to an equation.
3	Algebraic expressions / Measures of location and spread	**Repeated Root**	Two equal solutions to a quadratic equation.
3	Algebraic expressions / Measures of location and spread	**Discriminant**	The part of the quadratic formula under the square root.
4	Quadratics / Representations of data	**Measure of Location**	A value describing the position of data.
4	Quadratics / Representations of data	**Measure of Spread**	A value describing how dispersed data is.
4	Quadratics / Representations of data	**Mean**	The total of values divided by the number of values.
5	Quadratics / Representations of data	**Median**	The middle value of ordered data.
5	Quadratics / Representations of data	**Mode**	The most frequently occurring value.
5	Quadratics / Representations of data	**Interquartile Range**	The difference between Q3 and Q1.
6	Equations and inequalities / Representations of data	**Simultaneous Equations**	Equations solved together with shared solutions.
6	Equations and inequalities / Representations of data	**Elimination**	Solving equations by removing a variable.
6	Equations and inequalities / Representations of data	**Substitution**	Replacing a variable with an expression.

Week	Curriculum Component	Tier 3 Vocabulary	Definition
7	Equations and inequalities / Data collection	**Population**	The entire group being studied.
7	Equations and inequalities / Data collection	**Census**	Data collected from every member of a population.
7	Equations and inequalities / Data collection	**Sample**	A subset of the population.
8	Data collection	**Sampling Frame**	A list of all sampling units.
8	Data collection	**Quantitative Data**	Numerical data.
8	Data collection	**Qualitative Data**	Non-numerical data.
9	Binomial expansion / Probability	**Pascal's Triangle**	A triangle used to determine binomial coefficients.
9	Binomial expansion / Probability	**Factorial**	The product of all positive integers up to a given number.
9	Binomial expansion / Probability	**Binomial Expansion**	Expanding expressions of the form $(a + b)^n$.
10	Binomial expansion / Probability	**Experiment**	A repeatable process with known outcomes.
10	Binomial expansion / Probability	**Event**	A set of outcomes within a probability experiment.
10	Binomial expansion / Probability	**Sample Space**	The set of all possible outcomes.
11	Graphs and transformations / Statistical distributions	**Cubic Function**	A function with highest power 3.
11	Graphs and transformations / Statistical distributions	**Quartic Function**	A function with highest power 4.
11	Graphs and transformations / Statistical distributions	**Reciprocal Function**	A function involving negative powers.
12	Graphs and transformations / Statistical distributions	**Asymptote**	A line that a curve approaches but never meets.
12	Graphs and transformations / Statistical distributions	**Random Variable**	A variable determined by chance.
12	Graphs and transformations / Statistical distributions	**Probability Distribution**	Probabilities associated with outcomes.
13	Coordinate geometry / Statistical distributions	**Perpendicular**	Lines meeting at right angles.
13	Coordinate geometry / Statistical distributions	**Collinear**	Points lying on the same straight line.
13	Coordinate geometry / Statistical distributions	**Linear Model**	A straight-line model for data.
14	Coordinate geometry / Correlation	**Tangent**	A line touching a curve at one point.

Week	Curriculum Component	Tier 3 Vocabulary	Definition
14	Coordinate geometry / Correlation	**Correlation**	A measure of the relationship between variables.
14	Coordinate geometry / Correlation	**Bivariate Data**	Paired data values.
15	Coordinate geometry / Correlation	**PMCC**	A measure of strength and direction of correlation.
15	Coordinate geometry / Correlation	**Interpolation**	Estimating within the data range.
15	Coordinate geometry / Correlation	**Extrapolation**	Estimating outside the data range.
16	Algebraic methods / Hypothesis testing	**Polynomial**	An algebraic expression with integer powers.
16	Algebraic methods / Hypothesis testing	**Proof**	A logical argument establishing mathematical truth.
16	Algebraic methods / Hypothesis testing	**Axiom**	A statement accepted as true without proof.
17	Algebraic methods / Hypothesis testing	**Hypothesis Test**	A statistical test of assumptions.
17	Algebraic methods / Hypothesis testing	**Null Hypothesis**	The assumed true statement.
17	Algebraic methods / Hypothesis testing	**Alternative Hypothesis**	The competing statement.
18	Trigonometry / Hypothesis testing	**Identity**	An equation true for all valid values.
18	Trigonometry / Hypothesis testing	**Periodic Function**	A function that repeats indefinitely.
19	Trigonometry / Hypothesis testing	**Critical Region**	Values that lead to rejection of the null hypothesis.
19	Trigonometry / Hypothesis testing	**Significance Level**	The probability of rejecting a true null hypothesis.
22	Vectors / Modelling in mechanics	**Vector**	A quantity with magnitude and direction.
22	Vectors / Modelling in mechanics	**Scalar**	A quantity with magnitude only.
22	Vectors / Modelling in mechanics	**Magnitude**	The length of a vector.
23	Vectors / Modelling in mechanics	**Resultant**	The combined effect of vectors.
23	Vectors / Modelling in mechanics	**Particle**	An object with negligible dimensions.
23	Vectors / Modelling in mechanics	**Uniform Body**	An object with evenly distributed mass.
24	Differentiation / Constant acceleration	**Derivative**	The rate of change of a function.
24	Differentiation / Constant acceleration	**Stationary Point**	A point where the gradient equals zero.
25	Differentiation / Constant acceleration	**Gradient**	The slope of a graph at a point.
27	Differentiation / Constant acceleration	**Acceleration**	The rate of change of velocity.
30	Integration / Forces and motion	**Integral**	The result of integration.
30	Integration / Forces and motion	**Integrand**	The function being integrated.

Week	Curriculum Component	Tier 3 Vocabulary	Definition
31	Integration / Forces and motion	**Area Under a Curve**	The region between a graph and an axis.
33	Integration / Variable acceleration	**Variable Acceleration**	Acceleration that changes over time.
34	Exponentials and logarithms / Variable acceleration	**Exponential Function**	A function of the form $f(x) = ab^x$.
34	Exponentials and logarithms / Variable acceleration	**Logarithm**	The inverse operation of exponentiation.

Year 13

Week	Curriculum Component	Tier 3 Vocabulary	Definition
Week 1	Forces and friction / Algebraic methods	**Inclined plane**	A plane that is at an angle to the horizontal.
Week 1	Forces and friction / Algebraic methods	**Limiting friction**	The maximum possible frictional force between two surfaces.
Week 1	Forces and friction / Algebraic methods	**Resolving forces**	Breaking a force into perpendicular components.
Week 1	Forces and friction / Algebraic methods	**Rough surface**	A surface where friction acts.
Week 1	Forces and friction / Algebraic methods	**Smooth surface**	A surface where friction is negligible.
Week 2	Forces and friction / Trigonometry (Radian Measure)	**Equilibrium**	A state where the resultant force is zero.
Week 2	Forces and friction / Trigonometry (Radian Measure)	**Static equilibrium**	Equilibrium where the object is at rest.
Week 2	Forces and friction / Trigonometry (Radian Measure)	**Moment**	The turning effect of a force about a point.
Week 2	Forces and friction / Trigonometry (Radian Measure)	**Resultant moment**	The total clockwise and anticlockwise turning effect.
Week 3	Projectiles / Trigonometry 1 (Radian Measure)	**Projectile**	An object moving under gravity alone.
Week 3	Projectiles / Trigonometry 1 (Radian Measure)	**Time of flight**	The total time a projectile is in motion.
Week 3	Projectiles / Trigonometry 1 (Radian Measure)	**Range**	The horizontal distance travelled by a projectile.
Week 4	Projectiles / Trigonometry 1 (Radian Measure)	**Further kinematics**	Motion described using vectors and calculus.
Week 4	Projectiles / Trigonometry 1 (Radian Measure)	**Radian**	The angle subtended when arc length equals the radius.

Week 5	Moments / Trigonometry 2 (Equations and Identities)	**Reciprocal trigonometric functions**	The functions sec, cosec and cot.
Week 5	Moments / Trigonometry 2 (Equations and Identities)	**Inverse trigonometric functions**	Functions that reverse sine, cosine and tangent.
Week 5	Moments / Trigonometry 2 (Equations and Identities)	**Addition formulae**	Identities for sin(A±B), cos(A±B) and tan(A±B).
Week 6	Moments / Trigonometry	**Double angle formulae**	Identities involving trigonometric functions of 2A.
Week 6	Moments / Trigonometry	**Harmonic form**	Rewriting expressions as a single trigonometric function.
Week 6	Moments / Trigonometry	**Trigonometric identity**	An equation true for all values in its domain.
Week 7	Applications of Forces / Trigonometry	**Rod**	An object with length but negligible width and depth.
Week 7	Applications of Forces / Trigonometry	**Lamina**	A flat object with area but negligible thickness.
Week 7	Applications of Forces / Trigonometry	**Uniform rod**	A rod with mass evenly distributed.
Week 9	Functions and Graphs / Trigonometry	**Function**	A mapping with exactly one output for each input.
Week 9	Functions and Graphs / Trigonometry	**Composite function**	A function formed by combining two or more functions.
Week 9	Functions and Graphs / Trigonometry	**Inverse function**	A function that reverses another.
Week 10	Functions and Graphs / Trigonometry	**Domain**	The set of possible inputs.
Week 10	Functions and Graphs / Trigonometry	**Range**	The set of possible outputs.
Week 10	Functions and Graphs / Trigonometry	**Mapping**	A correspondence between inputs and outputs.
Week 11	Functions and Graphs / Trigonometry	**Modulus**	The absolute value of a number.
Week 11	Functions and Graphs / Trigonometry	**Concave function**	A function where the gradient is decreasing.
Week 11	Functions and Graphs / Trigonometry	**Convex function**	A function where the gradient is increasing.
Week 12	Functions and Graphs / Binomial expansion	**Point of inflection**	The point where a curve changes concavity.
Week 12	Functions and Graphs / Binomial expansion	**Degree of polynomial**	The highest power of the variable.

Week 12	Functions and Graphs / Binomial expansion	**Improper algebraic fraction**	A fraction where numerator degree ≥ denominator degree.
Week 14	Differentiation / Binomial expansion	**Chain rule**	A rule for differentiating composite functions.
Week 14	Differentiation / Binomial expansion	**Product rule**	A rule for differentiating products.
Week 14	Differentiation / Binomial expansion	**Quotient rule**	A rule for differentiating quotients.
Week 15	Differentiation / Binomial expansion	**Second derivative**	The derivative of the derivative.
Week 15	Differentiation / Binomial expansion	**Connected rates of change**	Related rates linked by an equation.
Week 16	Differentiation / Probability	**Conditional probability**	Probability given another event has occurred.
Week 16	Differentiation / Probability	**Normal distribution**	A symmetric probability distribution.
Week 17	Integration / Probability	**Integral**	The result of integration.
Week 17	Integration / Probability	**Integrand**	The function being integrated.
Week 18	Integration / The normal distribution	**Integration by substitution**	A method using a change of variable.
Week 18	Integration / The normal distribution	**Integration by parts**	A technique for integrating products.
Week 19	Integration / The normal distribution	**Trapezium rule**	A numerical method for approximating area.
Week 19	Integration / The normal distribution	**Differential equation**	An equation involving derivatives.
Week 20	Integration / The normal distribution	**Limit of a sum**	Interpretation of integration as accumulated area.
Week 22	Further Kinematics / The normal distribution	**Particle**	An object with negligible dimensions used in modelling.
Week 22	Further Kinematics / The normal distribution	**Vector**	A quantity with magnitude and direction.
Week 22	Further Kinematics / The normal distribution	**Scalar**	A quantity with magnitude only.
Week 23	Further Kinematics / The normal distribution	**Resultant**	The combined effect of vectors.
Week 23	Further Kinematics / The normal distribution	**Uniform body**	An object with evenly distributed mass.

Week 24	Parametric equations / Regression and correlation	**Parametric equation**	Equations defined using a third variable.
Week 24	Parametric equations / Regression and correlation	**Cartesian form**	Expressing equations using x and y only.
Week 24	Parametric equations / Regression and correlation	**Parameter**	An independent variable defining a curve.
Week 26	Parametric equations / Regression and correlation	**Bivariate data**	Data involving two variables.
Week 26	Parametric equations / Regression and correlation	**Product moment correlation coefficient**	A measure of linear correlation between variables.
Week 27	Vectors / Sequences and series	**Coplanar**	Lying in the same plane.
Week 27	Vectors / Sequences and series	**Bisect**	Divide into two equal parts.
Week 27	Vectors / Sequences and series	**Trisect**	Divide into three equal parts.
Week 28	Vectors / Sequences and series	**3D Cartesian coordinates**	Coordinates used to locate points in three dimensions.
Week 29	Numerical methods / Sequences and series	**Arithmetic sequence**	A sequence with constant difference.
Week 29	Numerical methods / Sequences and series	**Geometric sequence**	A sequence with constant ratio.
Week 29	Numerical methods / Sequences and series	**Recurrence relation**	A sequence defined using previous terms.
Week 30	Numerical methods / Sequences and series	**Series**	The sum of terms in a sequence.
Week 30	Numerical methods / Sequences and series	**Sigma notation**	Notation used to represent sums.
Week 30	Numerical methods / Sequences and series	**Iteration**	A repeated numerical process.
Week 30	Numerical methods / Sequences and series	**Newton–Raphson method**	An iterative method for solving equations.