Year 12 – Transition

Year 12 Resit	Autumn (1)	Autumn (2)	Spring (1)	Spring (2)	Summer (1)	Summer (2)
Topic	**Proportional reasoning** Ratio Rates Direct proportion **Numerical reasoning** Number sense Accuracy Calculation	**Algebraic reasoning** Equations & inequalities Straight line graphs Quadratic & other graphs Geometric reasoning **Angles rules** Shape properties Similarity	**Numerical reasoning** Types of number Fractions & percentages **Proportional reasoning** Averages ratios & fractions Context problems	**Geometric reasoning** Area and volume Transforming shapes Right-angled triangles **Algebraic reasoning** Manipulating algebra sequences	**Representations** Probability Constructions Representing data Revisiom	
Assessment	**Autumn Mock Exam** Number Algebra Ratio, proportion and rates of change Geometry and measures Probability Statistics	**Topic Assessments** Number Algebra Ratio, proportion and rates of change Geometry and measures Probability Statistics	**Spring Mock Exam** Number Algebra Ratio, proportion and rates of change Geometry and measures Probability Statistics	**Topic Assessments** Number Algebra Ratio, proportion and rates of change Geometry and measures Probability Statistics	**Topic Assessments** Number Algebra Ratio, proportion and rates of change Geometry and measures Probability Statistics	**GCSE Exam**
Link with GCSE skills and AO	1, AO1 Use and apply standard techniques 2, AO2 Reason, interpret and communicate mathematically 3. AO3 Solve problems within mathematics and in other contexts					
Enrichment	1. UK Mathematical Trust: Mathematical Challenges 2. Wednesday enrichment programme 3. Reading list					

Year 12 – A Level Mathematics

Year 12 Maths	Autumn (1)	Autumn (2)	Spring (1)	Spring (2)	Summer (1)	Summer (2)
Topic	**GCSE/ A level Transition** Expressions and equations Brackets and graph sketching **Pure** Surds and indices Quadratic functions Simultaneous equations Graphs and transformations Inequalities	**Pure** Straight line equations Equations of circles Factor theorem and polynomial factorisation Differentiation Graphs and transformations Proof	**Pure** Integration Binomial expansion theorem Trigonometry	**Pure** Exponentials and logarithms Vector geometry **Statistics** Data collection Sampling methods Data processing Presentation Interpretation **Mechanics** Modelling in mechanics Kinematics Newton's laws of constant acceleration	**Statistics** Probability Statistical distributions Hypothesis testing Forces and motion Variable acceleration	**Pure** Radians and circular measures
Assessment	**Autumn Mock Exams** Surds and indices Quadratic functions simultaneous equations Graphs Transformations Inequalities	**Topic Assessments** Straight line equations Equations of circles Factor theorem Polynomial factorisation Differentiation	**Topic Assessments** Integration Binomial expansion theorem Trigonometry	**Spring Mock Exams** Exponentials and logarithms Vector geometry Data collection Sampling methods Data processing, Presentation Interpretation Modelling in mechanics Kinematics Newton's laws of constant acceleration	**Topic Assessments** Probability Statistical distributions Hypothesis testing	**Progression Exams** Proof Algebra and functions Coordinate geometry in the (x,y) plane Sequences and series Trigonometry Exponentials and logarithms Differentiation Integration Vectors Statistical sampling Data presentation and interpretation Probability Statistical distributions Statistical hypothesis testing Quantities and units in mechanics Kinematics Forces and Newton's laws
Link with A level skills and AO	1, AO1 Use and apply standard techniques 2, AO2 Reason, interpret and communicate mathematically 3. AO3 Solve problems within mathematics and in other contexts					
Enrichment	1. UK Mathematical Trust: Mathematical Challenges 2. Wednesday enrichment programme 3. Mathematics Admissions Test guidance 4. Reading list					

Year 12 – A Level Further Mathematics

Year 12 Further Maths	Autumn (1)	Autumn (2)	Spring (1)	Spring (2)	Summer (1)	Summer (2)
Topic	**GCSE/ A level Transition** Expressions and equations Brackets and graph sketching **Pure** Basic algebra Graphs and transformations Straight line graphs Circles Algebraic methods Trigonometry Radians Vectors **Mechanics** Y1 Modelling in mechanics Ch	**Pure** Differentiation Exponentials and logarithms Differentiation Functions and graphs Trig functions Ch.6 (5) Trigonometry and modelling Binomial expansion **Mechanics** Constant acceleration Forces and motion	**Pure** Integration Binomial expansion Proof **Mechanics** Moments	**Pure** Sequences and series Parametric equations Parametric differentiation Numerical methods **Statistics** Data Collection Measures of location and spread Representations of data Correlation Probability Conditional probability Statistical distributions Hypothesis testing **Mechanics** Forces and friction Variable acceleration Projectiles	**Pure** Complex Numbers Argand Diagrams **Statistics** Regression **Correlation** Hypothesis testing The normal distribution **Mechanics** Applications of forces Further kinematics **Decision Mathematics** Algorithms Graphs and networks	**Pure** Series Roots of polynomials Volumes of revolution **Decision Mathematics** Algorithms on graphs
Assessment	**Autumn Mock Exam** Basic algebra Graphs and transformations Straight line graphs Circles Algebraic methods Trigonometry Radians Vectors	-	**Spring Mock Exam** **Pure** Differentiation Exponentials and logarithms Differentiation Functions and graphs Trig functions Ch.6 (5) Trigonometry and modelling Binomial expansion Integration Proof **Mechanics** Constant acceleration Forces and motion Moments			**Progression Exams** Proof Algebra and functions Coordinate geometry in the (x, y) plane Sequences and series Trigonometry Exponentials and logarithms Differentiation Integration Numerical methods Vectors Statistical sampling Data presentation and interpretation Probability Statistical distributions Statistical hypothesis testing Quantities and units in mechanics Kinematics Forces and Newton's laws Moments
Link with A level skills and AO	1, AO1 Use and apply standard techniques 2, AO2 Reason, interpret and communicate mathematically 3. AO3 Solve problems within mathematics and in other contexts					
Enrichment	1. UK Mathematical Trust: Mathematical Challenges 2. Wednesday enrichment programme 3. Mathematics Admissions Test guidance 4. Reading list					

Year 13 – A Level Mathematics

Year 13 Maths	Autumn (1)	Autumn (2)	Spring (1)	Spring (2)	Summer (1)	Summer (2)
Topic	**Pure** Trigonometry (radians) Algebraic methods Proof Functions Trigonometric Functions Trigonometric identities	**Pure** Parametric equations Differentiation Trigonometric identities Numerical methods Vectors	**Pure** Integration Sequences and series	**Pure** Binomial expansion **Mechanics** Moments of forces Forces and friction Applications of forces Further Kinematics **Statistics** Conditional Probability Normal distributions Hypothesis testing	**Revision** Proof Algebra and functions Coordinate geometry in the (x, y) plane Sequences and series Trigonometry Exponentials and logarithms Differentiation Integration Numerical methods Vectors Statistical sampling Data presentation and interpretation Probability Statistical distributions Statistical hypothesis testing Quantities and units in mechanics Kinematics Forces and Newton's laws Moments	**Revision** Proof Algebra and functions Coordinate geometry in the (x, y) plane Sequences and series Trigonometry Exponentials and logarithms Differentiation Integration Numerical methods Vectors Statistical sampling Data presentation and interpretation Probability Statistical distributions Statistical hypothesis testing Quantities and units in mechanics Kinematics Forces and Newton's laws Moments
Assessment	**Autumn Mock Exam** Proof Algebra and functions Coordinate geometry in the (x,y) plane Sequences and series Trigonometry Exponentials and logarithms Differentiation Integration Vectors Statistical sampling Data presentation and interpretation Probability Statistical distributions Statistical hypothesis testing Quantities and units in mechanics Kinematics Forces and Newton's laws		**Spring Mock Exam** Proof Algebra and functions Coordinate geometry in the (x, y) plane Sequences and series Trigonometry Exponentials and logarithms Differentiation Integration Numerical methods Vectors (No Binomial expansion)		**Topic Assessments** Proof Algebra and functions Coordinate geometry in the (x, y) plane Sequences and series Trigonometry Exponentials and logarithms Differentiation Integration Numerical methods Vectors Statistical sampling Data presentation and interpretation Probability Statistical distributions Statistical hypothesis testing Quantities and units in mechanics Kinematics Forces and Newton's laws Moments	**A Level Exam**
Link with A level skills and AO	1, AO1 Use and apply standard techniques 2, AO2 Reason, interpret and communicate mathematically 3. AO3 Solve problems within mathematics and in other contexts					
Enrichment	1. UK Mathematical Trust: Mathematical Challenges 2. Wednesday enrichment programme 3. Mathematics Admissions Test guidance 4. Reading list					

Year 13 – A Level Further Mathematics

Year 13 Further Maths	Autumn (1)	Autumn (2)	Spring (1)	Spring (2)	Summer (1)	Summer (2)
Topic	**Pure** Matrices Linear transformations Proof by Induction Vectors **Decision Mathematics** Route inspection The travelling salesman problem **Mechanics** Momentum and impulse Work, energy and power	**Pure** Vectors Further Complex numbers Further Series Methods in calculus **Decision Mathematics** Linear programming Simplex algorithm **Mechanics** Momentum and impulse Work, energy and power	**Pure** Vectors Further Complex numbers Further Series Methods in calculus **Decision Mathematics** Linear programming Simplex algorithm **Mechanics** Elastic strings and springs Elastic collisions in 1D	**Pure** Volumes of revolution Hyperbolic functions Methods in differential equations **Decision Mathematics** Critical path analysis **Mechanics** Elastic collisions in 2D	**Pure** Modelling with differential equations Polar coordinates **Revision** Proof Complex numbers Matrices Further Algebra and Functions Further Calculus Further Vectors Polar coordinates Hyperbolic functions Differential equations Trigonometry Numerical Methods	**Revision** Proof Complex numbers Matrices Further Algebra and Functions Further Calculus Further Vectors Polar coordinates Hyperbolic functions Differential equations Trigonometry Numerical Methods
Assessment	**Autumn Mock Exam** A Level Maths (Year 12 content) AS Further Maths: **Pure** Matrices Linear transformations Proof by Induction Vectors **Decision Mathematics** Route inspection The travelling salesman problem **Mechanics** Momentum and impulse Work, energy and power		**Spring Mock Exam** Matrices Linear transformations Proof by Induction Vectors Ch. 9 (7) Vectors Further Complex numbers Further Series Methods in calculus Decision Mathematics Route inspection The travelling salesman problem Linear programming Simplex algorithm Mechanics Momentum and impulse Work, energy and power Elastic strings and springs Elastic collisions in 1D		**Topic Assessments** Proof Complex numbers Matrices Further Algebra and Functions Further Calculus Further Vectors Polar coordinates Hyperbolic functions Differential equations Trigonometry Numerical Methods	**A Level Exam**
Link with A level skills and AO	1, AO1 Use and apply standard techniques 2, AO2 Reason, interpret and communicate mathematically 3. AO3 Solve problems within mathematics and in other contexts					
Enrichment	1. UK Mathematical Trust: Mathematical Challenges 2. Wednesday enrichment programme 3. Mathematics Admissions Test guidance 4. Reading list					