Mathematics

Curriculum Principles

By the end of their secondary education, a student of mathematics at Dixons Broadgreen will:

- Know the fundamental skills in mathematics which allow students to understand how to use this knowledge in future learning and employment. These include money management; reading timetables; discovering and understanding patterns in data and being able to solve problems.

- Recognise the beauty in sophisticated mathematical methods; be analytical thinkers and have a thirst for mathematical reasoning. On leaving Dixons Broadgreen, students will have developed fluency in procedures and be keen problem solvers.

Our uniting 'sentence' is: "The mathematics department at Dixons Broadgreen allowed students to question and explore the beauty of mathematics, leading to the development of resilient and analytical problem solvers. "

In order to achieve a true understanding of mathematics, topics have been intelligently sequence based on the following rationale:

- The overall aim of the mathematics curriculum is to provide students with the knowledge they need to increase their cultural capital and be successful in their lives beyond the academy. The mathematics curriculum has adopted a spiral curriculum, in which topics areas are revisited and extended on a yearly basis, this sequence of learning promotes a deeper understanding of the mathematical concepts being taught, both in-line with the National Curriculum and in the wider domain.

- Within the classroom, Lessons in Lower peak synthesise knowledge learned in a lesson with an exam question and there is a greater emphasis on this in Middle peak to provide students with applied practice, underpinned by real life contexts.

- The concept of interrupting the forgetting process permeates the mathematics long term plan (LTP) and schemes of work (SOW). Interleaving and spaced learning are utilised in several ways. Across each year, new learning is split into units of work, each beginning with quick revision, then focussing on extension and application of similar learning the year before. As a result, students will consistently revisit topics (spaced learning) and interleave concepts throughout their mathematics career. Spaced learning and interleave concepts are also applied within morning meetings. Students revisit topics within the morning meeting program which begins the learning each day. Every lesson begins with a 'Do Now', which promotes recall of integral knowledge, along with applied practice, from topics in the previous unit of work, allowing for spaced practice of up to six weeks. In addition, each topic taught has a mini-test and consolidation or extension re-test attached to assess understanding. Staff mark all re-tests and gaps in learning are addressed through global feedback, with opportunity for targeted additional practice. These tests ensure learning is visited repeatedly. Spaced learning through retrieval practice and brain dumps in morning meetings and recall homework from knowledge organisers, are supplementary ways in which the forgetting process is interrupted, leading to true mastery of the mathematical curriculum.

The mathematics curriculum will address social disadvantage by addressing gaps in students' knowledge and skills:

- The spiral nature of the mathematics curriculum is designed with the most vulnerable student in mind, assuming a basic mathematical understanding from previous learning, each peak builds the students' knowledge. Lower peak in particular is used to ensure fluency in fundamental mathematics by closing any knowledge gaps evidenced in assessment, whilst also providing suitable extension.

- On entry, students in Y7 working below the nationally expected level are immediately targeted in interventions such as 'Morning Mastery' sessions. Priority is given to students recognised as disadvantaged and topics covered in these sessions are identified through baseline testing. Throughout the year, attendance and topics covered in intervention sessions are altered according to mini-test scores, question level analysis from cycle assessments and in-class effective formative assessment.

- Oracy skills are developed through the exploration of functional questions using techniques such as Lemov's Reading Reconsidered ensures full understanding of the context of a question, including any assumed 'real life' knowledge, before tackling the mathematics behind it.

We fully believe mathematics can contribute to the personal development of students at DBA:

- Students will be encouraged to develop socially in mathematics lessons through the celebration of making mistakes and setting high expectations helps students to develop listening and speaking skills. Self-awareness is developed through self-assessment, which enables students to have an accurate understanding of their strengths and weaknesses, to accept them and then understand how to learn from them.

- Developing morality is evident in much of the mathematics curriculum where there is reference to real life contexts and students are encouraged to make decisions thus developing an understanding that certain choices may have different consequences and outcomes. One example where this applies is in percentages where comparing interest rates occurs and the role of 'loan sharks' can be discussed. Additionally, topics such as tracking and how the media use misleading statistical diagrams are also addressed.

- Encouraging students to question how mathematics impacts the way the world works promotes the spiritual growth of our students. Referring to 'big issues' such as the gender pay gap, birth and death rates, gambling through probability and global warming within contextual questions allows students to have a concrete understanding of where mathematics fits into the bigger picture. Teaching a variety of strategies that allow creativity to blossom (i.e. tessellation, construction and symmetry) and incorporating enrichment tasks during Maths Week such as money management and sport investigations allow students to develop more than just their problem solving skills in this subject.

- Being a universal language, and having phenomena developed all over the world, lends mathematics to promoting cultural capital. Discussion when introducing many topics, such as place value, time, Fibonacci sequences, Pythagoras and Trigonometry to name a few, allows cultural influences to be explored.

At KS3, KS4 and KS5, our belief is that homework should be interleaved revision of powerful knowledge that has been modelled and taught in lessons. This knowledge is recalled and applied through a range of low stakes quizzing and practice.

Opportunities are built in to make links to the world of work to enhance the careers, advice and guidance that students are exposed to:

- The mathematics curriculum provides students with opportunities to consider the world of work and how mathematics leads to successful careers. Each LI has a purpose attached for all students to see and, where relevant, the SoW refers to how the skill in question relates to specific careers or a future

life context. For example, when teaching constructions, reference can be made to any form of design work or navigational career. Every unit of work also contains a careers spotlight where students are introduced to a variety of careers, which utilise the learning of the unit. Information about qualifications needed, salaries and career progression are also referenced.

A true love of mathematics involves learning about various cultural domains. We teach beyond the specification requirements, but do ensure students are well prepared to be successful in GCSE examinations:

- Built into each SOW is content that will benefit students in their understanding of the wider impact of mathematics. For example, in Y7 students will recap telling the time and its Babylonian origins, explore where our place value systems came from and be introduced to Fibonacci and the 'Golden Ratio'. In Y8, students will discover Venn diagrams and the nuances of interest rates through percentages. Y9 and Y10 offer an insight into the history of Pythagoras Theorem and the origins of Trigonometry. Whilst not strictly appearing on the GCSE specification, providing this additional information will allow students to build their cultural capital and deepen their understanding into the true beauty behind the mathematics they learn.

- In Y7 and Y8, students take part in Maths Week. A variety of enrichment activities are provided to complement their mathematics lessons to allow students to further explore the domain of mathematics. Such activities include Roman Numerals, symmetry in Mandala patterns, code breaking, visits from external companies running problem solving activities and tasks such as 'setting up your life'.

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Week	Week 1	Week 2	Week 3	Week 4	Week 5	Week 6	Week 7	Week 8	Week 9	Week 10	Week 11	Week 12	Week 13	Week 14
Cycle 1	30/08/22	05/09/22	12/09/22	19/09/22	26/09/22	03/10/22	10/10/22	17/10/22	07/11/22	14/11/22	21/11/22	28/11/22	05/11/22	
Notes	All seating plans to be completed			Baseline test Maths and English					07/11/22 student reset	18/11/22 Data and planning day				
Unit		Unit 1 - Algebra	Unit 1 - Algebra	Unit 1 - Algebra	Unit 1 - Algebra	Unit 1 - Algebra	Unit 1 - Algebra	Unit 1 - Algebra	Unit 2 – Number	Unit 2 – Number	Unit 2 – Number	Unit 2 – Number	Unit 2 – Number	
Topic	01/09/22 – Year 7 induction / Onboarding	Onboarding/ Algebraic Notation	Algebraic notation/ Substitution	Substitution	Simplifying	Simplifying	Solving	Sequences	Place value, inequalities, and ordering	Four operations including decimals	Four operations / Reteach	Factors and multiples	Rounding and estimating	
Test				Algebraic notation	Substitution		Simplifying	Solving	Sequences	Place value		Four operations	Factors and multiples	
Retest					Algebraic notation	Substitution		Simplifying	Solving	Sequences	Place value		Four operations	
Numeracy Ninjas		Place value	Addition	Subtraction	Multiplication	Division	Multiplying by 10, 100 ..	Dividing by 10 100 ..	Square numbers	Fraction of an amount	Add a negative number	Subtract a negative number	Converting FDP	
Cycle 2	12/12/22	19/12/22	02/01/23	09/01/23	16/01/23	23/01/23	30/01/23	06/02/23	20/02/23	27/02/23	06/03/23	13/03/23	20/03/23	
Notes	16/12/22 Data and planning day	21/12/22 End of term	04/01/23 student reset			Y7 Mid-year exams	Y7 Mid-year exams	Y7 Mid-year exams 10/02/23 Dixons Trust Inset Day	20/02/23 student reset		6/03/23 and 07/03/23 Data & planning days			
Unit	Unit 2 – Number	Unit 2 – Number	Unit 3 – Geometry	Unit 3 – Geometry	Unit 3 – Geometry	Unit 3 – Geometry	Unit 3 – Geometry	Unit 3 – Geometry	Unit 4 – Fractions	Unit 4 – Fractions	Unit 4 – Fractions	Unit 4 – Fractions	Unit 4 – Fractions	
Topic	Application	Application	Unit conversion	Angle types, estimating, draw and measure	Angle types, estimating, draw and measure	Angle facts	Angle facts / Mixed angle facts	Mixed angle facts	Fractions of amounts	Fraction equivalence	Reteach	Four operations with fractions	Compare and order fractions	
Test	Rounding and estimating		Application	Unit conversion		Angle types, estimating		Angle facts	Mixed angle facts	Fractions of amounts	Fraction equivalence		Four operations with fractions	
Retest	Factors and multiples	Rounding and estimating		Application	Unit conversion		Angle types, estimating		Angle facts	Mixed angle facts	Fraction of amounts	Fraction equivalence		
Numeracy Ninjas	Order of operations	Order of operations (harder)	Simplify fractions	Factors	Revision	Revision	Multiples	Round to decimal place	Equivalent fractions	Multiplying negative numbers	Intervention From data and planning	Intervention From data and planning	Intervention From data and planning	
Cycle 3	27/03/23	17/04/22	24/04/23	01/05/23	08/05/23	15/05/23	22/05/23	05/06/23	12/06/23	19/06/23	26/06/23	03/07/23	10/07/22	17/07/22
Notes		17/04/23 student reset		01/05/22 May Day 4/05/23 – Y7 parents evening				05/06/23 student reset						20/07/23 Data and planning day 21/07/23 End of term
Unit	Unit 4 – Fractions	Unit 5 – Percentage	Unit 5 – Percentages	Unit 5 – Percentages	Unit 5 – Percentages	Unit 5 – Percentages	Unit 5 – Percentages	Unit 5 – Percentages	Unit 6 – Probability and Statistics	Unit 6 – Probability and Statistics	Unit 6 – Probability and Statistics	Unit 6 – Probability and Statistics	Unit 6 – Probability and Statistics	
	Worded fraction problems	FDP conversions and ordering FDP	FDP conversions and ordering FDP	Percentages of amounts (Non calculator)	Percentages - increase and decrease (non-calculator)	Percentages of amounts and percentage increase and decrease (Calculator)	Expressing as a percentage and percentage change	Expressing as a percentage and percentage change	Probability scales and simple probability	Probability NOT and from listing outcomes and frequency trees	Calculating MMMR	Simple statistical diagrams	Pie charts	
Test		Worded fraction problems	FDP conversions and ordering FDP	FDP conversions and ordering FDP	Percentages of amounts (Non calculator)	Percentages - increase & decrease (non-calc)	Percentages of amounts / percentage increase & decrease (Calc)		Expressing as a percentage and percentage change	Probability scales and simple probability	Probability NOT and from listing outcomes and frequency trees	Calculating MMMR	Simple statistical diagrams	
Retest	Four operations with fractions		Worded fraction problems	FDP conversions and ordering FDP	FDP conversions and ordering FDP	Percentages of amounts (Non calculator)	Percentages - increase and decrease (non-calculator)	Percentages of amounts and percentage in/decrease		Expressing as a percentage and percentage change	Probability scales and simple probability	Probability NOT and from listing outcomes and frequency trees	Calculating MMMR	Simple statistical diagrams
Numeracy Ninjas	Intervention From data and planning	Dividing negative numbers	Simple direct number	Read a number line	Round to a sig fig	Cube numbers	Percentage of an amount	Multiplying decimals	Revision	Revision	Revision	Dividing decimals	Substitution	

Year 8

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Week	Week 1	Week 2	Week 3	Week 4	Week 5	Week 6	Week 7	Week 8	Week 9	Week 10	Week 11	Week 12	Week 13	Week 14
Cycle 1	30/08/22	05/09/22	12/09/22	19/09/22	26/09/22	03/10/22	10/10/22	17/10/22	07/11/22	14/11/22	21/11/22	28/11/22	05/11/22	
Notes	All seating plans to be completed								07/11/22 student reset	18/11/22 Data and planning day				
Unit		Unit 1 - Number	Unit 1 - Number	Unit 1 - Number	Unit 1 - Number	Unit 1 - Number	Unit 1 - Number	Unit 2 – Algebra	Unit 2 – Algebra	Unit 2 – Algebra	Unit 2 – Algebra	Unit 2 – Algebra	Unit 2 – Algebra	
Topic	Onboarding	Index laws	Calculating with powers and roots, inc. Pythagoras	Calculating with powers and roots, inc. Pythagoras	Standard form	Prime factorisation, HCF and LCM	Sets and Venn diagrams	Inequalities and directed number	Simplify algebraic expressions Formulate/evaluate expressions	Transposing formulae	Reteach / Solving linear equations Form and solving	Solving linear equations Form and solving	Expanding brackets	
Test			Index laws		Powers roots and Pythag	Standard form	HCF and LCM	Sets and venn diagrams	Inequalities	Expressions	Transposing formulae		Solving equations	
Retest				Index laws		Powers roots and Pythag	Standard form	HCF and LCM	Sets and venn diagrams	Inequalities	Expressions	Transposing formulae		
Numeracy Ninjas		Place value	Addition	Subtraction	Multiplication	Division	Multiplying by 10, 100 ..	Dividing by 10 100 ..	Square numbers	Fraction of an amount	Add a negative number	Subtract a negative number	Converting FDP	
Cycle 2	12/12/22	19/12/22	02/01/23	09/01/23	16/01/23	23/01/23	30/01/23	06/02/23	20/02/23	27/02/23	06/03/23	13/03/23	20/03/23	
Notes	16/12/22 Data and planning day	21/12/22 End of term	04/01/23 student reset			Y8 Mid-year exams	Y8 Mid-year exams	Y8 Mid-year exams 10/02/23 Dixons Trust Inset Day	20/02/23 student reset		6/03/23 and 07/03/22 Data & planning days			
Unit	Unit 2 – Algebra	Unit 2 – Algebra	Unit 3 – 2D Geometry	Unit 3 – 2D Geometry	Unit 3 – 2D Geometry	Unit 3 – 2D Geometry	Unit 3 – 2D Geometry	Unit 3 – 2D Geometry	Unit 3 – 2D Geometry	Unit 3 – 2D Geometry	Unit 4 – Proportional Reasoning	Unit 4 – Proportional Reasoning	Unit 4 – Proportional Reasoning	
Topic	Factorising Expressions	Sequences	Triangle Constructions	Constructions and Loci	Angle Facts	Unit Conversion	Unit Conversion	Composite shapes	Parallelograms and Trapezia	Circles	Reteach	Converting FDP/ Percentage increase decrease	Percentage increase decrease/ Reverse Percentages	
Test	Expanding brackets	Factorising	Sequences	Triangle constructions	Constructions and loci	Angle facts		Unit conversion	Composite shapes	Parallelograms and Trapezia	Circles		Converting FDP/ Percentage increase decrease	
Retest	Solving equations	Expanding brackets	Factorising	Sequences	Triangle constructions	Constructions and loci	Angles facts		Unit conversion	Composite shapes	Parallelograms and Trapezia	Circles		
Numeracy Ninjas	Order of operations	Order of operations (harder)	Simplify fractions	Factors	Revision	Revision	Multiples	Round to decimal place	Equivalent fractions	Multiplying negative numbers	Intervention From data and planning	Intervention From data and planning	Intervention From data and planning	
Cycle 3	27/03/23	17/04/22	24/04/23	01/05/23	08/05/23	15/05/23	22/05/23	05/06/23	12/06/23	19/06/23	26/06/23	03/07/23	10/07/22	17/07/22
Notes		17/04/23 student reset 20/04/23 – Y8 parents evening		01/05/23 May Day				05/06/23 student reset						20/07/23 Data and planning day 21/07/23 End of term
Unit	Unit 4 – Proportional Reasoning	Unit 4 – Proportional Reasoning	Unit 5 – 3D Geometry	Unit 5 – 3D Geometry	Unit 5 – 3D Geometry	Unit 5 – 3D Geometry	Unit 5 – 3D Geometry	Unit 6 – Statistics	Unit 6 – Statistics	Unit 6 – Statistics	Unit 6 – Statistics	Unit 6 – Statistics	Unit 6 – Statistics	Unit 6 – Statistics
	Ratio	Speed, Distance and Time	Identify and explore 3d Shapes	Calculate Surface Area	Calculate Volume	Cylinders, Cones and Pyramids	Calculate the volume of Composite shapes	Compare stat representations	Revision	Revision	MMMR from a frequency table	Frequency Diagrams	Identify errors and misconceptions	Intervention / catch up
Test	Percentage increase decrease/Reverse Percentages	Ratio	Speed, distance, and time	Identify and explore 3d Shapes	Calculate Surface Area	Calculate Volume	Cylinders, Cones and Pyramids	Volume of composite shapes	Compare Stat representations		MMMR from a frequency table	Frequency Diagrams	Identify errors and misconceptions	
Retest	Converting FDP/ Percentage increase decrease	Percentage increase decrease/Reverse Percentages	Ratio	Speed, distance, and time	Identify and explore 3d Shapes	Calculate Surface Area	Calculate Volume	Cylinders, Cones and Pyramids	Volume of composite shapes	Compare Stat representations		MMMR from a frequency table	Frequency Diagrams	
Numeracy Ninjas	Intervention From data and planning	Dividing negative numbers	Simple direct number	Read a number line	Round to a sig fig	Cube numbers	Percentage of an amount	Multiplying decimals	Revision	Revision	Revision	Dividing decimals	Substitution	

Year 9

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DIXONS BROADGREEN ACADEMY

Week	Week 1	Week 2	Week 3	Week 4	Week 5	Week 6	Week 7	Week 8	Week 9	Week 10	Week 11	Week 12	Week 13	Week 14
Cycle 1	30/08/22	05/09/22	12/09/22	19/09/22	26/09/22	03/10/22	10/10/22	17/10/22	07/11/22	14/11/22	21/11/22	28/11/22	05/11/22	
Notes	All seating plans to be completed								07/11/22 student reset	18/11/22 Data and planning day				
Unit		Unit 1 – Graphs and proportion	Unit 1 – Graphs and proportion	Unit 1 – Graphs and proportion	Unit 1 – Graphs and proportion	Unit 1 – Graphs and proportion	Unit 2 – Algebraic Expressions	Unit 2 – Algebraic Expressions	Unit 2 – Algebraic Expressions	Unit 2 – Algebraic Expressions	Unit 2 – Algebraic Expressions	Unit 2 – Algebraic Expressions	Unit 2 – Algebraic Expressions	
Topic	Onboarding	Coordinates and mid-points	Linear Functions	Direct Proportion	Inverse Proportion	Using Scales	Arithmetic and geometric sequences	Algebraic manipulation	Expanding	Factorising	Reteach	Solving	Transposing Formulae	
Test			Coordinates and mid-points	Linear Functions	Direct Proportion	Inverse Proportion	Using Scales	sequences	Algebraic manipulation	Expanding	Factorising		solving	
Retest				Coordinates and mid-points	Linear Functions	Direct Proportion	Inverse Proportion	Using Scales	sequences	Algebraic manipulation	Expanding	Factorising		
Do Nows		Data Representations	Interpreting and comparing statistical representations	MMMR from a table	Frequency Diagrams	Errors in representations	Coordinates	Linear graphs	Direct Proportion	Inverse proportion	Intervention	Intervention	Intervention	
Cycle 2	12/12/22	19/12/22	02/01/23	09/01/23	16/01/23	23/01/23	30/01/23	06/02/23	20/02/23	27/02/23	06/03/23	13/03/23	20/03/23	
Notes	16/12/22 Data and planning day	21/12/22 End of term	04/01/23 student reset			Y9 Mid-year exams	Y9 Mid-year exams	Y9 Mid-year exams 10/02/23 Dixons Trust Inset Day	20/02/23 student reset		6/03/23 and 07/03/22 Data & planning days		23/03/23 Y9 Parents evening	
Unit	Unit 3 – 2D Geometry	Unit 3 – 2D Geometry	Unit 3 – 2D Geometry	Unit 3 – 2D Geometry	Unit 3 – 2D Geometry	Unit 3 – 2D Geometry	Unit 3 – 2D Geometry	Unit 3 – 2D Geometry	Unit 4 – Equations and Inequalities	Unit 4 – Equations and Inequalities	Unit 4 – Equations and Inequalities	Unit 4 – Equations and Inequalities	Unit 4 – Equations and Inequalities	
Topic	Mixed angle problems	Mixed angle problems	Angles in polygons	Constructions and loci	Congruence	Similarity	Similarity	Arcs and sectors	Inequalities	Inequalities	Simultaneous equations	Simultaneous equations applications	Plotting non-linear functions (quadratic, Higher: cubic, reciprocal, exponential	
Test	Transposing Formulae		Mixed angle problems	Angles in polygons	Construction and Loci	Congruence		Similarity	Arcs and sectors		Inequalities	Simultaneous Equations	Simultaneous equations app	
Retest	Solving	Transposing Formulae		Mixed angle problems		Construction and Loci	Congruence		Similarity	Arcs and sectors		Inequalities	Simultaneous Equations	
Do Nows	Scales	Sequences	Expanding	Revision	Revision	Revision	Factorising	Solving	Transposing	Constructions	Angles in Polygons	Congruency	Similarity	
Cycle 3	27/03/23	17/04/22	24/04/23	01/05/23	08/05/23	15/05/23	22/05/23	05/06/23	12/06/23	19/06/23	26/06/23	03/07/23	10/07/22	17/07/22
Notes		17/04/23 student reset		01/05/23 May Day				05/06/23 student reset						20/07/23 Data and planning day 21/07/23 End of term
Unit	Unit 4 – Equations and Inequalities	Unit 5 – Geometry	Unit 5 – Geometry	Unit 5 – Geometry	Unit 5 – Geometry	Unit 5 – Geometry	Unit 5 – Geometry	Unit 6 – Statistics	Unit 6 – Statistics	Unit 6 – Statistics	Unit 6 – Statistics	Unit 6 – Statistics	Unit 6 – Statistics	Unit 6 – Statistics
	Catch up / reteach	Pythagoras Higher (3D)	Trigonometry	Trigonometry	Trigonometry graphs	Transformations	Transformations	Probability	Revision	Revision	Averages from grouped data Comparing data sets	Stem and leaf diagrams and scatter graphs (Higher: equation of line of best fit)	SDT and VT graphs	Catch up /Intervention
Test	Plotting non-linear functions		Pythagoras Higher (3D)		Trigonometry	Trigonometry graphs		Transformations	Probability			Averages from grouped data	Stem and leaf/scatter graphs	SDT and VT graphs
Retest	Simultaneous equations app	Plotting non-linear functions		Pythagoras Higher (3D)		Trigonometry	Trigonometry graphs		Transformations	Probability			Averages from grouped data	Stem and leaf/scatter graphs
Do Nows	Arcs and Sectors	Inequalities	Simultaneous equations	Quadratic graphs	Angle facts	Estimating	Indices	Revision	Revision	Revision	Pythagoras	Transformations	Trigonometry	Catch up and intervention

DIXONS BROADGREEN ACADEMY

Week	Week 1	Week 2	Week 3	Week 4	Week 5	Week 6	Week 7	Week 8	Week 9	Week 10	Week 11	Week 12	Week 13	Week 14
Cycle 1	30/08/22	05/09/22	12/09/22	19/09/22	26/09/22	03/10/22	10/10/22	17/10/22	07/11/22	14/11/22	21/11/22	28/11/22	05/11/22	
Notes	All seating plans to be completed								07/11/22 student reset	18/11/22 Data and planning day				
	Onboarding	Number properties	working with negative numbers	Working with decimals	Fractions	Fractions	Representing data	Collecting data	Ratio and proportion	Ratio and proportion problem solving	Patterns and sequences	Percentages	Percentages	
Do Now		Fractions	Algebraic Manipulations	Percentages	Geometry	Ratio	Fractions	Algebraic Manipulations	Percentages	Geometry	Intervention From data and planning	Ratio	Fractions	
GCSE Assessment			Assessment 1	Assessment DIRT		Assessment 2	Assessment DIRT		Assessment 3	Assessment DIRT		Assessment 4	Assessment DIRT	
Cycle 2	12/12/22	19/12/22	02/01/23	09/01/23	16/01/23	23/01/23	30/01/23	06/02/23	20/02/23	27/02/23	06/03/23	13/03/23	20/03/23	
Notes	16/12/22 Data and planning day	21/12/22 End of term	04/01/23 student reset	Y10 Mid-year Exams	Y10 Mid-year Exams			10/02/23 Dixons Trust Inset Day	20/02/23 student reset		6/03/23 and 07/03/22 Data & planning days 09/03/23 Y10 parents evening			
	Percentages	Percentages	Revision	Revision	Angles	Angles	Linear graphs	Linear graphs	Pythagoras' Theorem	Construction and loci	Construction and loci	Re Teach	Accuracy and rounding	
Do Now	Algebraic manipulation	Intervention From data and planning	Form and evaluate	Expanding	Factorising	Solving equations	Forming and solving	Inequalities	Sequences	Linear graphs	Unit Conversions	Intervention From data and planning	scales	
GCSE Assessment		Assessment 5	Assessment DIRT						Assessment 6	Assessment DIRT		Assessment 7	Assessment DIRT	
Cycle 3	27/03/23	17/04/22	24/04/23	01/05/23	08/05/23	15/05/23	22/05/23	05/06/23	12/06/23	19/06/23	26/06/23	03/07/23	10/07/22	17/07/22
Notes		17/04/23 student reset		01/05/22 May Day				05/06/23 student reset						20/07/23 Data and planning day 21/07/23 End of term
	Inequalities	Algebraic expressions	Algebraic expressions	Algebra - Equations	Algebra Equations	Probability	Probability	Area and perimeter	Revision	Revision	Area and perimeter problems	Averages	Transformations and vectors	
Do Now	Pie charts	Pythagoras	Percentage increase & decrease	Reverse percentages	indices	Four operations Fractions	Angle facts	Mixed angles facts	Revision	Revision	Estimation	Ratio	Probability	Catch up
GCSE Assessment		Assessment 8	Assessment DIRT		Assessment 9	Assessment DIRT								

Week	Week 1	Week 2	Week 3	Week 4	Week 5	Week 6	Week 7	Week 8	Week 9	Week 10	Week 11	Week 12	Week 13	Week 14
Cycle 1	28/08/23	04/09/23	11/09/23	18/09/23	25/09/23	02/10/23	9/10/23	16/10/23	06/11/23	13/11/23	20/11/23	27/11/23	04/12/23	
Notes	All seating plans to be completed													
	Onboarding	Circles	Circles	Transformations	Transformations	Indices and standard form	Indices and standard form	Formulae And Kinematics	Formulae And Kinematics	Simultaneous equations	Trigonometry	Trigonometry	Revision	
Do Now		Fractions	Algebraic Manipulations	Percentages	Geometry	Ratio	Fractions	Algebraic Manipulations	Percentages	Geometry	Intervention From data and planning	Ratio	Fractions	
GCSE Assessment														
Cycle 2	12/12/22	19/12/22	02/01/23	09/01/23	16/01/23	23/01/23	30/01/23	06/02/23	20/02/23	27/02/23	06/03/23	13/03/23	20/03/23	
Notes														
Do Now														
GCSE Assessment														
Cycle 3														
Notes														
Do Now														
GCSE Assessment														

Year 10 - Higher

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Week	Week 1	Week 2	Week 3	Week 4	Week 5	Week 6	Week 7	Week 8	Week 9	Week 10	Week 11	Week 12	Week 13	Week 14
Cycle 1	30/08/22	05/09/22	12/09/22	19/09/22	26/09/22	03/10/22	10/10/22	17/10/22	07/11/22	14/11/22	21/11/22	28/11/22	05/12/22	
Notes	All seating plans to be completed								07/11/22 student reset	18/11/22 Data and planning day				
	Onboarding	Fractions and decimals	Area of 2D and 3D shapes	Volume and surface area	Volume and surface area	Circle theorems	Ratio and proportion	Ratio and proportion	Pythagoras theorem	Pythagoras theorem	Trigonometry	Trigonometry	Non right-angled trigonometry	
Do Now		Data	Intervention from data and planning	Graphs	GCSE Formulae	Algebraic manipulation	Data	Geometry	Probability	Solving	Intervention from data and planning	Intervention from data and planning	Intervention from data and planning	
GCSE Assessment			Assessment 1		Interleaving booklet session 1	Assessment 2		Interleaving booklet session 2	Assessment 3		Interleaving booklet session 3	Assessment 4		
Cycle 2	12/12/22	19/12/22	02/01/23	09/01/23	16/01/23	23/01/23	30/01/23	06/02/23	20/02/23	27/02/23	06/03/23	13/03/23	20/03/23	
Notes	16/12/22 Data and planning day	21/12/22 End of term	04/01/23 student reset	Y10 Mid-year Exams	Y10 Mid-year Exams			10/02/23 Dixons Trust Inset Day	20/02/23 student reset		6/03/23 and 07/03/22 Data & planning days 09/03/23 Y10 parents evening			
	Non right-angled trigonometry	Catch up week	Revision	Revision	Improvements	Averages	Types of data and stratified sampling	Data	Data	Data	Collecting data	Collecting data	Inequalities	
Do Now	GCSE formulae	Intervention	Intervention	Intervention	Geometry	Solving quadratics	Trigonometry	Trigonometry	Graphs	Proportion	Averages	Averages	Data	
GCSE Assessment	Interleaving booklet session 4	Assessment 5		Assessment 6	Interleaving booklet session 5			Interleaving booklet session 6			Interleaving booklet session 7			
Cycle 3	27/03/23	17/04/22	24/04/23	01/05/23	08/05/23	15/05/23	22/05/23	05/06/23	12/06/23	19/06/23	26/06/23	03/07/23	10/07/22	17/07/22
Notes		17/04/23 student reset		01/05/22 May Day				05/06/23 student reset						20/07/23 Data and planning day 21/07/23 End of term
	Indices and standard form	Transformations	Transformations	Similarity and congruency	Transformations of graphs	Transformations of graphs	Functions	Functions	Formula and Kinematics	Probability	Probability	Probability	Catch up	Catch up
Do Now	Inequalities	Inequalities	Indices and standard form	Transformations	Transformations	Similarity and congruency	Transformations graphs	Functions	Functions	Formula and Kinematics	Intervention	Intervention		
GCSE Assessment	Interleaving booklet session 8			Interleaving booklet session 9			Interleaving booklet session 10			Interleaving booklet session 11				Interleaving booklet session 13

Year 11

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DIXONS BROADGREEN ACADEMY

Week	Week 1	Week 2	Week 3	Week 4	Week 5	Week 6	Week 7	Week 8	Week 9	Week 10	Week 11	Week 12	Week 13	Week 14
Cycle 1	30/08/22	05/09/22	12/09/22	19/09/22	26/09/22	03/10/22	10/10/22	17/10/22	07/11/22	14/11/22	21/11/22	28/11/22	05/11/22	
Notes	All seating plans to be completed								07/11/22 student reset	18/11/22 Data and planning day Y11 PPE Exams	Y11 PPE1 Exams			
	Onboarding	1. squares, cubes, roots 2. use of calculator 3. Estimation 4. error intervals	1. HCF and LCM 2. Product of prime 3. product of prime using HCF and LCM 4. laws of indices	1. substitution 2. expand single bracket + simplify 3. expand double brackets 4. factorise linear expressions	1. factorise quadratics 2. Solve equations unknowns on one side (all) 3. Solve equations unknowns on both sides 4. stem and leaf + find average from stem and leaf	1. Draw + interpret pie charts 2. scatter graph draw + interpret 3. FDP + ordering 4 fraction of amount	1. 4 operations with fractions (x/÷) 2. % of amount non calc 3. % of amount calc 4. % increase and decrease	1. compound interest 2. depreciation 3. reverse % 4. % change	1. all averages 2. averages from a table 3. inverse mean	Revision	Revision	1. inequalities (list integers +_ number line) 2. solve inequalities 3. linear sequences (nth term, find a term, prove a term in a sequence) 4. continue geometric sequence	1. basic angle facts 2. angles in parallel lines 3. angles in parallel lines 4. angles in polygons	
Do Now		Algebraic manipulation	Intervention From data and planning	Form and evaluate	Expanding	Factorising	Solving equations	Forming and solving	Inequalities	Linear graphs	Intervention From data and planning	Intervention From data and planning	Intervention From data and planning	
GCSE Assessment			Assessment 1	Assessment DIRT	Revision	Assessment 2	Assessment DIRT	Revision	Assessment 3	Assessment DIRT	Assessment DIRT	Assessment DIRT	Assessment DIRT	
Cycle 2	12/12/22	19/12/22	02/01/23	09/01/23	16/01/23	23/01/23	30/01/23	06/02/23	20/02/23	27/02/23	06/03/23	13/03/23	20/03/23	
Notes	16/12/22 Data and planning day	21/12/22 End of term	04/01/23 student reset					10/02/23 Dixons Trust Inset Day	20/02/23 student reset		6/03/23 and 07/03/22 Data & planning days	Y11 PPE2 Exams	Y11 PPE2 Exams	
	1. perimeter problems 2. area of rectangle, triangle 3. area of trapezium, parallelogram 4. area of composite shapes	Revision and catch up	1. surface area prisms 2. volume of prisms 3. interpret real life graphs 4. distance time graphs	1. plot a straight line graph 2. find equation of line graphically 3. find equation of line given gradient and point 4. parallel lines	1. reflect 2. rotate 3. translate 4. Enlargement	1. fractional enlargement 2. mixed transformations 3. write in the form 1:n share a ratio 4. more than ratio problems and reverse ratio	1. combination ratios 2. proportion 3. exchange rates 4. recipes	1. Surface area cylinders 2.Volume cylinder	1. worded inverse proportion 2. direct proportion 3. Pythagoras x2	1. trigonometry X2 3. basic probability (number line, writing, listing outcomes) 4. frequency trees	Revision / catch up	Revision	Revision	
Do Now														
GCSE Assessment	Assessment 4	Assessment DIRT	Revision	Assessment 5	Assessment DIRT	Revision	Assessment 6	Assessment DIRT	Revision	Assessment 6	Assessment DIRT	Revision	Assessment 7	
Cycle 3	27/03/23	17/04/22	24/04/23	01/05/23	08/05/23	15/05/23	22/05/23	05/06/23	12/06/23	19/06/23	26/06/23	03/07/23	10/07/22	17/07/22
Notes		17/04/23 student reset		01/05/22 May Day				05/06/23 student reset						20/07/23 Data and planning day 21/07/23 End of term
	1. relative frequency 2. sample space diagrams 3. Venn diagrams 4. set notation	1. tree diagrams x2 3. speed x2	1. density 2. plans and elevations 3. line construction and bisection 4. angle bisection	1. negative fractional indices 2. standard form 3. standard form calculations 4. similar shapes	1. vector notation 2. vector addition 3. change subject of a formula 4. simultaneous equations	1. sim eqs graphically 2 bearings x2 4 loci	Revision	Revision	Revision	Revision	Revision	Revision	Revision	
Do Now														
GCSE Assessment	Assessment DIRT	Revision	Assessment 8	Assessment DIRT	Revision	Assessment 9	Assessment DIRT							

Year 11 - Higher

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DIXONS BROADGREEN ACADEMY

Week	Week 1	Week 2	Week 3	Week 4	Week 5	Week 6	Week 7	Week 8	Week 9	Week 10	Week 11	Week 12	Week 13	Week 14
Cycle 1	30/08/22	05/09/22	12/09/22	19/09/22	26/09/22	03/10/22	10/10/22	17/10/22	07/11/22	14/11/22	21/11/22	28/11/22	05/11/22	
Notes	All seating plans to be completed								07/11/22 student reset	18/11/22 Data and planning day Y11 PPE Exams	Y11 PPE1 Exams			
	Onboarding	1. Limits of accuracy 2. Error intervals 3. Calculations with limits of accuracy	1. **Congruence** 2. **Congruent triangles** 3. **Similarity** 4. **Calculating similar lengths**	**1.Area of similar shapes and angles 2. Problems with similar shapes 3.Volume of similar shapes and volume scale factor 4. Volume of similar shapes and volume scale factor**	1 Solving inequalities 2. Inequalities with two variables **3. Plotting inequalities 4.Graphing multiple inequalities**	1. **Graphing multiple inequalities** 2. **Quadratic inequalities** 3. **Quadratic inequalities** 4. **Consolation lesson.**	1.Simplifying surds 2. Calculations with surds 3. Calculations with surds 4. Brackets with surds	**1. Rationalising the denominator 2. Rationalising the denominator with 2 terms** 3.Indices negative powers 4. Indices fractional powers	1 Laws of indices change of base **2.Calculations with a change of base 3. Adding and subtracting standard form 4. Adding and subtracting standard form**	Revision	Revision	1. Solving quadratics by factorising 2. Solving complex quadratics by factorising 3. **Completing the square** 4. **Form and solve quadratic equations**	1. **Using the quadratic formula to solve equations** 2. **Sketching quadratic graphs** 3. **Sketching quadratic graphs** 4. Linear simultaneous equations	
Do Now		Data	**Intervention From data and planning**	Graphs	GCSE Formulae	**Algebraic manipulation**	Data	Geometry	Probability	Solving	**Intervention From data and planning**	**Intervention From data and planning**	**Intervention From data and planning**	
GCSE Assessment			**Assessment 1**	**Assessment DIRT**	**Revision**	**Assessment 2**	**Assessment DIRT**	**Revision**	**Assessment 3**	**Assessment DIRT**	**Assessment DIRT**	**Assessment DIRT**	**Assessment DIRT**	
Cycle 2	12/12/22	19/12/22	02/01/23	09/01/23	16/01/23	23/01/23	30/01/23	06/02/23	20/02/23	27/02/23	06/03/23	13/03/23	20/03/23	
Notes	16/12/22 Data and planning day	21/12/22 End of term	04/01/23 student reset					10/02/23 Dixons Trust Inset Day	20/02/23 student reset		6/03/23 and 07/03/22 Data & planning days	Y11 PPE2 Exams	Y11 PPE2 Exams	
	1. **Solving quadratic simultaneous equations** 2. **Solving quadratic simultaneous equations** 3. Consolidation 4. Consolidation	Revision and catch up	1. **Arc length of sectors** 2. **Area of sectors** 3. **Perimeter of sectors** 4. **Manipulating sector formula**	1. Trigonometry finding missing lengths and angles 2. 3D trigonometry **3. Cosine Rule finding angles 4. Cosine Rule finding lengths**	**1. Sine Rule 2. Applying the Sine rule 3. Trigonometry area of triangles 4. Exact trig values**	**1. Trigonometric graphs 2. Trigonometric graphs 3 . Equation of a circle plotting 4. Equation of a circle plotting**	1.Find the equation of a line given a point 2. Find the equation of a line given two points 3. Parallel and perpendicular lines **4. Finding the equation of a circle graph**	1. Direct proportion 2. Inverse portion 3. Angles in polygons recap	1. **Angles in parallel lines recap** 2. **Finding the equation of a circle graph** 3. **Area under a curve** 4. **Area under a curve.**	**1.Circle theorems 2.Tangent circle theorems 3. Applying theorems involving tangents 4. Applying multiple circle theorems**	Revision / catch up	Revision	Revision	
Do Now	GCSE Formulae	**Intervention**	**Intervention**	Intervention	Geometry	**Solving quadratics**	Trigonometry	Trigonometry	Graphs	Proportion	Surds	Surds	Equations	
GCSE Assessment	**Assessment 4**	**Assessment DIRT**	**Revision**	**Assessment 5**	**Assessment DIRT**	**Revision**	**Assessment 6**	**Assessment DIRT**	**Revision**	**Assessment 6**	**Assessment DIRT**	**Revision**	**Assessment 7**	
Cycle 3	27/03/23	17/04/22	24/04/23	01/05/23	08/05/23	15/05/23	22/05/23	05/06/23	12/06/23	19/06/23	26/06/23	03/07/23	10/07/22	17/07/22
Notes		17/04/23 student reset		01/05/22 May Day				05/06/23 student reset						20/07/23 Data and planning day 21/07/23 End of term
	1. **Functions** 2. **Inverse functions** 3. **Composite functions** 4. **Consolidation**	1. **Iteration** 2. **Iteration** 3. Algebraic fractions 4. Algebraic fractions	1. Density, mass, volume 2. plans and elevations 3. **line construction and bisection** 4. angle bisection	1. **Vector notation** 2. **Vector addition** 3. **Geometrical proofs with vectors** 4. **Vector problems with ratio**	1. Enlargements from a point 4. All transformations	1 Bearings 2. Loci	Revision	Revision	Revision	Revision	Revision	Revision	Revision	
Do Now	SDT	**Functions**	**Iteration**	**Algebraic Fractions**	DMV	**Vectors**								

GCSE Assessment	Assessment DIRT	Revision	Assessment 8	Assessment DIRT	Revision	Assessment 9	Assessment DIRT							

Week	Week 1	Week 2	Week 3	Week 4	Week 5	Week 6	Week 7	Week 8	Week 9	Week 10	Week 11	Week 12	Week 13	Week 14
Cycle 1	30/08/22	05/09/22	12/09/22	19/09/22	26/09/22	03/10/22	10/10/22	17/10/22		07/11/22	14/11/22	21/11/22	28/11/22	05/11/22
Notes	All seating plans to be completed								07/11/22 student reset	18/11/22 Data and planning day Y11 PPE Exams	Y11 PPE1 Exams			
	Onboarding	- place value - rounding to 10,100,1000,1dp - rounding to 1sf - 4 operations inc decimals	- squares, cubes, roots - use of calculator - estimation - factors and multiples	- HCF and LCM - prime numbers - Product of prime - laws of indices	- collect like terms -multiply algebraic terms - substitution (positive, negative and worded) x2	- expand single bracket + simplify - expand double brackets - factorise linear expressions	- pictogram, tally chart, bar chart - stem and leaf + find average from stem and leaf -draw pie charts - interpret pie charts	- pictogram, tally chart, bar chart - stem and leaf + find average from stem and leaf -draw pie charts - interpret pie charts	- scatter graph draw interpret - simplify + FDP - ordering FDP - fraction of amount	Revision	Revision	- 4 operations with fractions add and subtract - 4 operations with fractions multiply divide -% of amount none calc - % of amount calc	- % increase and decrease - % change -function machines - solve equations (one and two step)	
Do Now		Algebraic manipulation	Intervention From data and planning	Form and evaluate	Expanding	Factorising	Solving equations	Forming and solving	Inequalities	Linear graphs	Intervention From data and planning	Intervention From data and planning	Intervention From data and planning	
GCSE Assessment			Assessment 1	Assessment DIRT	Revision	Assessment 2	Assessment DIRT	Revision	Assessment 3	Assessment DIRT	Assessment DIRT	Assessment DIRT	Assessment DIRT	
Cycle 2	12/12/22	19/12/22	02/01/23	09/01/23	16/01/23	23/01/23	30/01/23	06/02/23	20/02/23	27/02/23	06/03/23	13/03/23	20/03/23	
Notes	16/12/22 Data and planning day	21/12/22 End of term	04/01/23 student reset					10/02/23 Dixons Trust Inset Day	20/02/23 student reset		6/03/23 and 07/03/22 Data & planning days	Y11 PPE2 Exams	Y11 PPE2 Exams	
	- solve equations (unknowns both sides) - inequalities (list integers +_ number line) - solve inequalities - linear sequences (nth term, find a term, continue any sequence)	Revision and catch up	- basic angle facts x2 - angles in polygons (basic) x2	- angles in parallel lines (basic) - all averages x2 - averages from a table	- perimeter problems - area of rectangle, triangle, trapezium, parallelogram x2 - area of composite shapes	- surface area prisms x2 - volume of prisms x2	- interpret real life graphs - distance time graphs - plot a straight line graph	- reflect - rotate - translate - enlargement - describe transformations	- proportion - exchange rates - recipes - worded direct and inverse proportion	- Pythagoras x2 - basic probability (number line, writing, listing outcomes) x2	Revision / catch up	Revision	Revision	
Do Now														
GCSE Assessment	Assessment 4	Assessment DIRT	Revision	Assessment 5	Assessment DIRT	Revision	Assessment 6	Assessment DIRT	Revision	Assessment 6	Assessment DIRT	Revision	Assessment 7	
Cycle 3	27/03/23	17/04/23	24/04/23	01/05/23	08/05/23	15/05/23	22/05/23	05/06/23	12/06/23	19/06/23	26/06/23	03/07/23	10/07/23	17/07/22
Notes		17/04/23 student reset		01/05/22 May Day				05/06/23 student reset						20/07/23 Data and planning day 21/07/23 End of term
	- frequency trees - relative frequency - sample space diagrams	- venn diagrams - set notation - tree diagrams x2	- speed x2 - plans and elevations	- expand double brackets - quadratic graphs - convert between ordinary and standard form	- 4 operations with standard form x2 - vector notation - vector addition and subtraction	Revision	Revision	Revision	Revision	Revision	Revision	Revision	Revision	
Do Now														
GCSE Assessment	Assessment DIRT	Revision	Assessment 8	Assessment DIRT	Revision	Assessment 9	Assessment DIRT							

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Week	Week 1	Week 2	Week 3	Week 4	Week 5	Week 6	Week 7	Week 8	Week 9	Week 10	Week 11	Week 12	Week 13	Week 14
Cycle 1	30/08/22	05/09/22	12/09/22	19/09/22	26/09/22	03/10/22	10/10/22	17/10/22	07/11/22	14/11/22	21/11/22	28/11/22	05/11/22	
Notes	All seating plans to be completed								07/11/22 student reset	18/11/22 Data and planning day	Year 12 Parents evening		Year 12 PPE1 exams	
	Onboarding	Recap and introduction to A level maths	Pure mathematics Algebra and functions Algebraic expressions – basic algebraic manipulation, indices and surds	Pure mathematics Algebra and functions Quadratic functions – factorising, solving, graphs and the discriminants	Pure mathematics Algebra and functions Equations – quadratic/linear simultaneous	Pure mathematics Algebra and functions Inequalities – linear and quadratic (including graphical solutions)	Pure mathematics Algebra and functions Graphs – cubic, quartic and reciprocal	Pure mathematics Algebra and functions Transformations – transforming graphs – f(x) notation	Pure mathematics Coordinate geometry in the (x,y) plane Straight-line graphs, parallel/perpendicular, length and area problems	Pure mathematics Coordinate geometry in the (x,y) plane Straight-line graphs, parallel/perpendicular, length and area problems	Pure mathematics Further Algebra Algebraic division, factor theorem and proof	Pure mathematics Further Algebra The binomial expansion	Revision and Catch up	
Cycle 2	12/12/22	19/12/22	02/01/23	09/01/23	16/01/23	23/01/23	30/01/23	06/02/23	20/02/23	27/02/23	06/03/23	13/03/23	20/03/23	
Notes	16/12/22 Data and planning day		04/01/23 student reset					10/02/23 Dixons Trust Inset Day	20/02/23 student reset	Year 12 PPE2 exams	6/03/23 and 07/03/23 Data & planning days			
	Pure mathematics Trigonometry Radians (exact values), arcs and sectors	Pure mathematics Trigonometry Trigonometric identities and equations	Recap	Pure mathematics Vectors (2D) Definitions, magnitude/direction, addition and scalar multiplication	Pure mathematics Vectors (2D Position vectors, distance between two points, geometric problems	Pure mathematics Differentiation Definition, differentiating polynomials, second derivatives	Pure mathematics Differentiation Definition, differentiating polynomials, second derivatives Gradients, tangents, normals, maxima and minima	Pure mathematics Differentiation Gradients, tangents normals, maxima and minima	Statistics Regression and correlation Change of variable Correlation coefficients Statistical hypothesis testing for zero correlation	Revision and Catch up	Statistics Data presentation and interpretation Calculation and interpretation of measures of location; Calculation and interpretation of measures of variation; Understand and use coding	Statistics Data presentation and interpretation Interpret diagrams for single-variable data; Interpret scatter diagrams and regression lines Recognise and interpret outliers; Draw simple conclusions from statistical problems	Statistics Probability Mutually exclusive events; Independent events	
Cycle 3	27/03/23	17/04/22	24/04/23	01/05/23	08/05/23	15/05/23	22/05/23	05/06/23	12/06/23	19/06/23	26/06/23	03/07/23	10/07/22	17/07/22
Notes		17/04/23 student reset		01/05/22 May Day				05/06/23 student reset				Year 12 PPE3 exams		
	Statistics Statistical distribution Use discrete distributions to model real-world situations; Identify the discrete uniform distribution; Calculate probabilities using the binomial distribution (calculator use expected)	Statistics Statistical hypothesis testing Language of hypothesis testing Significance levels Carry out hypothesis tests involving the binomial distribution	Pure mathematics Integration Definition as opposite of differentiation, indefinite integrals of x^n	Revision and catch up	Pure mathematics Integration Definite integrals and areas under curves	Pure mathematics Exponentials and logarithms Exponential functions and natural logarithms	Pure mathematics Exponentials and logarithms Exponential functions and natural logarithms	Mechanics Quantities and units in mechanics Introduction to mathematical modelling and standard S.I. units of length, time and mass Definitions of force, velocity, speed, acceleration and weight and displacement; Vector and scalar quantities	Mechanics Kinematics – Constant acceleration Graphical representation of velocity, acceleration, and displacement Motion in a straight line under constant acceleration; suvat formulae for constant acceleration; Vertical motion under gravity	Mechanics Kinematics – Constant acceleration Graphical representation of velocity, acceleration, and displacement Motion in a straight line under constant acceleration; suvat formulae for constant acceleration; Vertical motion under gravity	Mechanics Forces and Newton's laws Newton's first law, force diagrams, equilibrium, introduction to i, j system Newton's second law, 'F = ma', connected particles Newton's third law: equilibrium, problems involving smooth pulleys	Revision and catch up	Mechanics Forces and Newton's laws Newton's first law, force diagrams, equilibrium, introduction to i, j system Newton's second law, 'F = ma', connected particles Newton's third law: equilibrium, problems involving smooth pulleys	Mechanics Kinematics – variable acceleration Variable force; Calculus to determine rates of change for kinematics Use of integration for kinematics problems i.e. $r = \int v \, dt,\ v = \int a \, dt$