Year 10L (Crossover): Curriculum Implementation Plan

OVERVIEW				
Knowledge and Skills – Students will be taught to…	Reading, Oracy, Literacy	Formative Assessment	Summative Assessment	Link to GCSE Content
Please see individual units below.	- Reading worded questions to understand the context and decide how to approach a problem - Paired discussion of problems - Writing responses to worded questions such as "Explain why…" - Expanding vocabulary of key mathematical terms - Giving verbal responses in class question-and-answer	- Questioning in class - Self-assessment - Peer-assessment - Starter and homework questions - Mini-tests - Show of hands and other forms of whole-class feedback - Review of student work during lessons - Mini-whiteboards	Whole-class assessments towards the end of each term, based on work completed during the year to date. Full GCSE mock examination in the summer term, in preparation for Year 11.	Please see individual units below.

Mathematics – Unit 1 – Powers & Roots	
Knowledge and Skills – Students will be taught to…	Links to KS4 National Curriculum (red) & Exam board specification (blue)
• Understand and evaluate negative powers with numerical bases • Understand the equivalence between e.g. x^-7 and 1/x^7 • Review: Understand and use the index laws for multiplication, division, and power of power (brackets), including where negative powers are involved • Understand and use the index law for power 0 • Simplify more complex expressions involving powers using a combination of index laws • Use index laws to multiply and divide algebraic terms involving higher powers and multiple variables • Understand and evaluate fractional powers with numerical bases • Understand the equivalence between e.g. $x^{\frac{3}{2}}$, $\left(\sqrt{x}\right)^3$ and $\sqrt{x^3}$	Calculate with roots, and with integer indices Calculate with fractional indices N6 use positive integer powers and associated real roots (square, cube and higher), recognise powers of 2, 3, 4, 5 N7 calculate with roots, and with integer indices N7 calculate with fractional indices
Mathematics – Unit 2 – Ratio & Scale	
Knowledge and Skills – Students will be taught to…	Links to KS4 National Curriculum (red) & Exam board specification (blue)
• Review: Simplify a 2-part or 3-part ratio, particularly with different units and decimals • Review: Divide a quantity into a 2-part or 3-part ratio, including where one part, or the difference, is given • Solve simple problems involving a combination of two ratios, including where dividing in a quantity is also involved • Draw/interpret accurate scale diagrams, including using map scale factors (given as ratios or e.g. 1cm represents 4km) • Plot/interpret a bearing in a scale diagram	Identify and work with fractions in ratio problems R4 use ratio notation, including reduction to simplest form R5 divide a given quantity into two parts in a given part:part or part:whole ratio; express the division of a quantity into two parts as a ratio R8 relate ratios to fractions and to linear functions R5 apply ratio to real contexts and problems (such as those involving conversion, comparison, scaling, mixing, concentrations) N11 identify and work with fractions in ratio problems R8 relate ratios to fractions and to linear functions R12 compare lengths, areas and volumes using ratio notation; make links to similarity (including trigonometric ratios) and scale factors

Mathematics – Unit 3 – Brackets	
Knowledge and Skills – Students will be taught to…	Links to KS4 National Curriculum (red) & Exam board specification (blue)
- Review: Create a mathematical argument to show that two expressions are equivalent (prove an identity) - Expand and simplify the product of three binomials - Review: Factorise an expression into a single bracket - Simplify an algebraic fraction that involves factorising into a single bracket - Factorise a quadratic expression (a=1), relating this to a graph - Factorise a quadratic expression (a>1), relating this to a graph - Factorise a difference of two squares	Use algebra to support and construct arguments and proofs Factorise quadratic expressions, including a difference of two squares Factorise quadratic expressions of the form $ax2 + bx + c$ A1 use and interpret algebraic manipulation, including brackets A4 simplify and manipulate algebraic expressions by taking out common factors A3 understand and use the concepts and vocabulary of terms and factors A4 simplify and manipulate algebraic fractions A4 expand the product of more than two binomials A4 simplify and manipulate algebraic expressions by factorising quadratic expressions, including the difference of two squares
Mathematics – Unit 4 – Area & Perimeter	
Knowledge and Skills – Students will be taught to…	Links to KS4 National Curriculum (red) & Exam board specification (blue)
- Review: Calculate the area of a trapezium - Review: Calculate the area of a compound shape, including made from more than one shape - Solve area or perimeter problems involving more than one shape (e.g. the area of the triangle is 5 times the area of the rectangle) - Review: Form and solve a linear equation in the context of area or perimeter - Use brackets in the context of area or perimeter (e.g. area of a rectangle) - Identify/draw further parts of a circle (tangent, chord, sector, segment, arc) - Calculate the area, arc length or perimeter of a sector - Form and solve an equation to calculate the angle or radius of a sector, using its area or arc length - Use the area of a sector to calculate the perimeter (or arc length) and vice versa	Identify and apply circle definitions and properties, including: centre, radius, chord, diameter, circumference, tangent, arc, sector and segment Calculate exactly with multiples of π Calculate arc lengths, angles and areas of sectors of circles G17 know the formulae for circumference and area of a circle; calculate: perimeters of 2D shapes including circles, areas of circles and composite shapes G9 identify and apply circle definitions and properties, including: centre, radius, chord, diameter, circumference, tangent, arc, sector and segment N8 calculate exactly with multiples of π G13 calculate arc lengths, angles and areas of sectors of circles G9 identify and apply circle definitions and properties, including: centre, radius, chord, diameter, circumference, tangent, arc, sector and segment N8 calculate exactly with fractions and multiples of π

Mathematics – Unit 5 – Equations	
Knowledge and Skills – Students will be taught to…	Links to KS4 National Curriculum (red) & Exam board specification (blue)
- Solve a quadratic equation by factorising (a=1), including interpreting the solutions as roots and linking to a graphical representation - Know and apply the Quadratic Formula to solve a quadratic equation (a=1, a>1) - Find approximate solutions to linear simultaneous equations using a graph - Solve two linear simultaneous equations by elimination, including where rearrangement is needed - Solve a problem by deriving and solving two linear simultaneous equations	Deduce roots of quadratic functions algebraically Solve quadratic equations algebraically by factorising Solve quadratic equations that require rearrangement by factorising Find approximate solutions to a quadratic equation using a graph Solve quadratic equations by using the quadratic formula A18 solve quadratic equations algebraically by factorising A11 deduce roots algebraically A18 solve quadratic equations that require rearrangement by factorising A18 find approximate solutions to quadratic equations using a graph A18 solve quadratic equations (including those that require rearrangement) by using the quadratic formula
Mathematics – Unit 6 – Volume	
Knowledge and Skills – Students will be taught to…	Links to KS4 National Curriculum (red) & Exam board specification (blue)
- Review: Calculate the volume of cuboids, prisms and cylinders - Calculate the volume of spheres, cones and pyramids - Solve context problems involving the volume of solids, including composite solids - Form and solve equations to solve problems involving volume (e.g. to find a missing length) - Use algebra in context problems involving volume (e.g. where lengths are specified algebraically)	Construct and interpret plans and elevations of 3D shapes Calculate volumes of spheres, pyramids, cones and composite solids G12 identify properties of the faces, surfaces, edges and vertices of: cubes, cuboids, prisms, cylinders, pyramids, cones and spheres G13 construct and interpret plans and elevations of 3D shapes G16 know and apply formulae to calculate: area of triangles, parallelograms, trapezia; volume of cuboids and other right prisms (including cylinders) N13 use standard units of length, using decimal quantities where appropriate G14 use standard units of measure and related concepts (length, area, volume/capacity, etc.)

Mathematics – Unit 7 – Fractions	
Knowledge and Skills – Students will be taught to…	Links to KS4 National Curriculum (red) & Exam board specification (blue)
• Convert a fraction to a recurring decimal • Convert a recurring decimal to a fraction • Compare and order fractions with different denominators • Order a combination of fractions, decimals and percentages • Review: Use the four operations with simple algebraic fractions • Multiply/divide more complex algebraic fractions • Increase or decrease a quantity by a fraction • Find the result of a repeated fractional change	Change recurring decimals into their corresponding fractions and vice versa Calculate exactly with fractions Simplify and manipulate algebraic fractions N10 change fractions into recurring decimals and recurring decimals into their corresponding fractions N2 apply the four operations, including formal written methods, to simple fractions (proper and improper), and mixed numbers – all both positive and negative N8 calculate exactly with fractions N12 Interpret fractions as operators
Mathematics – Unit 8 – Angles	
Knowledge and Skills – Students will be taught to…	Links to KS4 National Curriculum (red) & Exam board specification (blue)
• Review: Solve problems involving angles on parallel lines • Review: Solve problems involving interior and exterior angles in polygons • Form and solve a linear equation in the context of angles	G3 apply the properties of angles at a point, angles at a point on a straight line, vertically opposite angles; understand and use alternate and corresponding angles on parallel lines; derive and use the sum of angles in a triangle (e.g. to deduce and use the angle sum in any polygon, and to derive properties of regular polygons) G6 apply angle facts and properties of quadrilaterals to conjecture and derive results about angles and sides, including the fact that the base angles of an isosceles triangle are equal, and use known results to obtain simple proofs G9 identify and apply circle definitions and properties, including: centre, radius, chord, diameter, circumference, tangent, arc, sector and segment

Mathematics – Unit 9 – Linear Graphs	
Knowledge and Skills – Students will be taught to…	Links to KS4 National Curriculum (red) & Exam board specification (blue)
• *Review: Plot a line graph of the form y=mx+c, including using a table of values* • Decide whether a point would lie on a line with given equation • Plot a line graph which is defined implicitly e.g. 3x+4y=12 • Find an approximate solution to a linear equation using a graph • Find the equation of the line through a given point with given gradient • Find the equation of the line through a given point, which is parallel to another line, specified by its equation	Recognise, sketch and interpret graphs of linear functions Use the form y = mx + c to identify parallel lines Find the equation of the line through two given points, or through one point with a given gradient A8 work with co-ordinates in all four quadrants A9 plot graphs of equations that correspond to straight-line graphs A9 use the form y = mx + c to identify parallel lines A10 identify gradients and intercepts of linear functions algebraically A9 find the equation of the line through two given points or through one point with a given gradient
Mathematics – Unit 10 – Inequalities	
Knowledge and Skills – Students will be taught to…	Links to KS4 National Curriculum (red) & Exam board specification (blue)
• Identify an inequality represented on a number line • Draw a number line to represent a given inequality • Solve a linear inequality with a negative term in the unknown on one side • Solve a linear inequality with the unknown on both sides, including where one of both terms in the unknown are negative • Identify possible integer solutions • Solve a simple 3-part inequality • Identify the set of integer solutions • Review: Represent the solution of a single inequality using a shaded region on a graph • Identify a single inequality represented on a graph • Represent the solution of a set of inequalities using a shaded region on a graph • Identify the set of inequalities satisfied by a given shaded region on a graph	Solve linear inequalities in one variable; represent the solution set on a number line Solve linear inequalities in two variables, represent the solution set on a graph N1 use the symbols =, ≠, <, >, ≤, ≥ A3 understand and use the concepts and vocabulary of inequalities A22 solve linear inequalities in one variable; represent the solution set on a number line A22 solve linear inequalities in two variables; represent the solution set on a number line, using set notation and on a graph

Mathematics – Unit 11 – Statistics 1	
Knowledge and Skills – Students will be taught to…	Links to KS4 National Curriculum (red) & Exam board specification (blue)
• Criticise a data collection method • Find a small set of data values that produce a combination of given statistics (mean, median, mode, range) • Review: Understand why the median is often a more reliable measure of average than the mean • Review: Calculate the mean and total from an ungrouped frequency table • Review: Estimate the mean and total from a grouped frequency table, appreciating why this is only an estimate • Identify the mode from an ungrouped frequency table • Identify the modal class from a grouped frequency table • Identify the range from an ungrouped frequency table • Estimate the range from a grouped frequency table • Review: Plot points on a scatter diagram, identify the type and strength of any correlation, describe the relationship shown, identify outliers • Review: Use a line of best fit on a scatter diagram to make predictions • Review: Understand that predictions will be unreliable for values outside the range of the original data (extrapolation)	Interpret, analyse and compare the distributions of data sets from univariate empirical distributions through appropriate measures of central tendency (including modal class) and spread (the range), and appropriate graphical representation involving discrete, continuous and grouped data Interpret and construct tables and line graphs for time series data Apply statistics to describe a population Use and interpret scatter graphs of bivariate data; recognise correlation and know that it does not indicate causation; draw estimated lines of best fit; make predictions; interpolate and extrapolate apparent trends, whilst knowing the dangers of so doing S4 interpret, analyse and compare the distributions of data sets from univariate empirical distributions through appropriate measures of central tendency (median, mean, mode and modal class) and spread (range, including consideration of outliers) S5 apply statistics to describe a population S2 interpret and construct tables, charts and diagrams, including frequency tables, bar charts, pie charts and pictograms for categorical data, vertical line charts for ungrouped discrete numerical data, tables and line graphs for time series data and know their appropriate use S4 interpret, analyse and compare the distributions of data sets from univariate empirical distributions through appropriate graphical representation involving discrete, continuous and grouped data S6 use and interpret scatter graphs of bivariate data; recognise correlation and know that it does not indicate causation; draw estimated lines of best fit; make predictions; interpolate and extrapolate apparent trends while knowing the dangers of so doing

Mathematics – Unit 12 – Formulae & Functions	
Knowledge and Skills – Students will be taught to…	Links to KS4 National Curriculum (red) & Exam board specification (blue)
• Review: Substitute positive and negative integers into formulae • Review: Multiply two decimals • Substitute decimals into formulae • Review: Use the four operations with fractions • Substitute fractions into formulae • Review: find numerical and algebraic outputs using function notation • Review: Change the subject of a simple 2-step formula, that involves the four operations • Change the subject of formulas involving 3+ steps, small powers, and small roots	Interpret simple expressions as functions with inputs and outputs A2 substitute numerical values into formulae, including scientific formulae A3 understand and use the concepts and vocabulary of formulae and terms A5 rearrange formulae to change the subject A7 interpret simple expressions as functions with inputs and outputs
Mathematics – Unit 13 – Basic Trigonometry	
Knowledge and Skills – Students will be taught to…	Links to KS4 National Curriculum (red) & Exam board specification (blue)

• Review: Use Pythagoras' theorem to calculate missing sides in a right-angled triangle, including in context
• Review: Use Pythagoras' theorem to determine whether a given triangle is right-angled
• Use Pythagoras' theorem in 3D problems involving cuboids and other solids
• Use sin, cos, tan to find a missing side in a right-angled triangle
   - Label the sides of a right-angled triangle 'hypotenuse', 'adjacent' and 'opposite'
   - Understand sin, cos & tan as functions of angles that give ratios of pairs of sides
   - Use a calculator to find the sine/cosine/tangent of angles
   - Choose an appropriate trig. ratio for a given situation
   - Set up and solve a trig. equation to find a missing side
   - Set up and solve when the unknown is in a denominator
• Use sin, cos, tan to find a missing angle in right-angled triangle
• Solve a variety of problems involving right-angled triangles, including in context
	Apply Pythagoras' Theorem to find lengths in right-angled triangles in 2D and 3D
	
	Apply trigonometric ratios to find angles and lengths in right-angled triangles in 2D
	
	Link trigonometric ratios to similar triangles
	
	G6 apply angle facts, triangle congruence, similarity and properties of quadrilaterals to conjecture and derive results about angles and sides,
	
	including Pythagoras' theorem, and use known results to obtain simple proofs
	
	G20 know the formula for Pythagoras' theorem and apply it to find lengths in right-angled triangles in two-dimensional figures
	
	R12 compare lengths using ratio notation; make links to similarity (including trigonometric ratios)
	
	G20 know the formulae for the trigonometric ratios; apply them to find angles and lengths in right-angled triangles in two-dimensional figures

Mathematics – Unit 14 – Number	
Knowledge and Skills – Students will be taught to…	Links to KS4 National Curriculum (red) & Exam board specification (blue)
- Use a calculator to evaluate complex calculations involving integers, decimals and trigonometric functions - Review: Use prime factor form to identify the LCM and HCF of larger numbers - Solve context problems involving HCF and LCM - Review: Divide by a decimal by transforming to division by an integer - Review: Estimate when dividing by a decimal - Estimate with powers and roots, including in context - Decide whether an estimate is an over-estimate or under-estimate in situations where the values were all rounded up, or all rounded down - Review: Identify the upper bound and lower bound for a rounded number - Review: Write an error interval for a rounded number - Solve simple problems involving bounds, where one number has been rounded - Truncate a decimal number to a given number of decimal places - Write an error interval for a truncated number - Solve problems in context involving calculating with decimals	Estimate powers and roots of any given positive number Apply and interpret limits of accuracy when rounding or truncating (including upper and lower bounds) N2 apply the four operations, including formal written methods, to integers, decimals, simple fractions (proper and improper), and mixed numbers – all both positive and negative N10 work interchangeably with terminating decimals and their corresponding fractions (such as 3.5 and 7/2 or 0.375 or 3/8) N14 estimate answers; check calculations using approximation and estimation, including answers obtained using technology N6 estimate powers and roots of any given positive number N15 use inequality notation to specify simple error intervals due to truncation or rounding N16 apply and interpret limits of accuracy N16 apply and interpret upper and lower bounds
Mathematics – Unit 15 – Non-linear Graphs	
Knowledge and Skills – Students will be taught to…	Links to KS4 National Curriculum (red) & Exam board specification (blue)
- Review: Plot the graph of a simple quadratic function, using a table of values - Appreciate the general shape of a quadratic graph - Review: Identify/estimate the roots and turning point of a quadratic function from its graph - Find approximate solutions to a quadratic equation using a graph - Plot/interpret the graph of a non-standard function	Recognise, sketch and interpret graphs of quadratic functions Identify and interpret roots, intercepts and turning points of quadratic functions graphically Find approximate solutions to a quadratic equation using a graph Plot and interpret graphs of non-standard functions in real contexts A12 recognise, sketch and interpret graphs of quadratic functions A11 identify and interpret roots, intercepts, turning points of quadratic functions graphically A18 find approximate solutions to quadratic equations using a graph A14 plot and interpret graphs of non-standard functions in real contexts

Mathematics – Unit 16 – Compound Units	
Knowledge and Skills – Students will be taught to…	Links to KS4 National Curriculum (red) & Exam board specification (blue)
(Applied to the compound units below) Analyse the effect of a change in a value - Review: Solve simple problems involving speed, distance and time - Solve simple problems involving speed where the units of distance or time need to be changed beforehand - Review: Plot/complete a distance-time graph, including interpreting the gradient as speed - Review: Solve simple problems involving density - Solve problems involving density where the units of mass need to be changed beforehand - Solve problems involving density where the volume needs to be calculated	Plot and interpret graphs in real contexts, to find approximate solutions to problems such as simple kinematic problems involving distance, speed and acceleration Interpret the gradient of a straight line graph as a rate of change Interpret the gradient of a graph, or area under a graph, in cases such as distance-time graphs A10 identify and interpret gradients and intercepts of linear functions graphically A14 plot and interpret graphs in real contexts to find approximate solutions to problems such as simple kinematic problems involving distance, speed and acceleration R14 interpret the gradient of a straight line graph as a rate of change; recognise and interpret graphs that illustrate direct and inverse proportion N13 use standard units of mass, length, time, money and other measures (including standard compound measures) using decimal quantities where appropriate
Mathematics – Unit 17 – Proportion	
Knowledge and Skills – Students will be taught to…	Links to KS4 National Curriculum (red) & Exam board specification (blue)
- Solve simple problems in context involving direct proportion - Review: Solve problems involving rates of pay - Solve problems involving population density - Solve problems involving other rates and rates of change - Review: Identify graphs and tables that represent a direct proportion relationship - Know the features of expressions and formulas that represent a direct proportion relationship - Construct and use simple formulas involving direct proportion - Solve simple problems in context involving inverse proportion - Construct and use simple formulas involving inverse proportion - Know the features of graphs, tables, expressions and formulas that represent an inverse proportion relationship	Recognise graphs that illustrate direct and inverse proportion Construct and interpret equations and graphs that describe direct and inverse proportion Understand that X is inversely proportional to Y is equivalent to X is proportional to 1/Y R6 express a multiplicative relationship between quantities as a ratio or a fraction R10 solve problems involving direct and inverse proportion, including graphical and algebraic representations R14 recognise and interpret graphs that illustrate direct and inverse proportion R13 understand that X is inversely proportional to Y is equivalent to X is proportional to 1/Y; interpret equations that describe direct and inverse proportion R13 construct equations that describe direct and inverse proportion

Mathematics – Unit 18 – Percentage	
Knowledge and Skills – Students will be taught to…	Links to KS4 National Curriculum (red) & Exam board specification (blue)
- Compare two quantities using percentages - Review: Identify the percentage of a change, profit or loss - Review: Solve original value problems involving percentage change - Review: Find the result of a repeated percentage change, using a calculator and multiplier - Review: Solve problems involving simple and compound interest	Set up, solve and interpret the answers in growth and decay problems, including compound interest R9 define percentage as 'number of parts per hundred' R9 interpret percentages as a fraction or a decimal and interpret these multiplicatively R9 compare two quantities using percentages R9 express one quantity as a percentage of another R9 interpret percentage changes as a fraction or a decimal, and interpret these multiplicatively; work with percentages greater than 100%; solve problems involving percentage change, including percentage increase/decrease N12 Interpret percentages as operators R9 solve problems involving percentage change, including original value problems, and simple interest including in financial mathematics R16 set up, solve and interpret the answers in growth and decay problems, including compound interest
Mathematics – Unit 19 – Advanced Trigonometry	
Knowledge and Skills – Students will be taught to…	Links to KS4 National Curriculum (red) & Exam board specification (blue)
- Use the Sine Rule to find missing sides in non-right-angled triangles - Use the Sine Rule to find missing angles in non-right-angled triangles - Use the Cosine Rule to find missing sides in non-right-angled triangles - Use the Cosine Rule to find missing angles in non-right-angled triangles - Solve a variety of problems involving non-right-angled triangles	Know and apply the sine rule and cosine rule to find unknown lengths and angles G22 know and apply the sine rule and cosine rule to find unknown lengths and angles

Mathematics – Unit 20 – Statistics 2	
Knowledge and Skills – Students will be taught to…	Links to KS4 National Curriculum (red) & Exam board specification (blue)
• Use a sample to infer properties of a population, using proportional reasoning • Construct/interpret frequency polygons • Identify misleading diagrams • Construct stem and leaf diagrams • Interpret stem and leaf diagrams, including identifying the mode, median and range	Infer properties of populations or distributions from a sample, whilst knowing the limitations of sampling Interpret, analyse and compare the distributions of data sets from univariate empirical distributions through appropriate measures of central tendency (including modal class) and spread (the range) Apply statistics to describe a population Infer properties of populations or distributions from a sample, whilst knowing the limitations of sampling Construct and interpret diagrams for grouped discrete data and continuous data, including cumulative frequency graphs, and know their appropriate use S4 interpret, analyse and compare the distributions of data sets from univariate empirical distributions through appropriate measures of central tendency (median, mean, mode and modal class) and spread (range, including consideration of outliers) S5 apply statistics to describe a population S1 infer properties of populations or distributions from a sample, while knowing the limitations of sampling
Mathematics – Unit 21 – Sequences & Proof	
Knowledge and Skills – Students will be taught to…	Links to KS4 National Curriculum (red) & Exam board specification (blue)
• Use algebra in proofs involving odd and even numbers • Use algebra in sequences, including Fibonacci-type sequences • Review: identify the nth term of an increasing linear sequence • Identify the nth term of a decreasing linear sequence	Recognise and use simple arithmetic progressions and Fibonacci-type sequences Deduce expressions to calculate the nth term of linear sequences Use algebra to support and construct arguments and proofs A24 recognise and use simple arithmetic progressions and Fibonacci-type sequences A25 deduce expressions to calculate the nth term of linear sequences A6 use algebra to support and construct arguments and proofs

Mathematics – Unit 22 – Vectors	
Knowledge and Skills – Students will be taught to…	Links to KS4 National Curriculum (red) & Exam board specification (blue)
- Understand vector and scalar quantities - Identify/represent column vectors on a grid - Add column vectors, understanding this as a resultant of two vectors, including represented on a grid - Subtract column vectors - Multiply a column vector by a scalar - Identify vectors in a diagram (e.g. in terms of **a** and **b**), including where a midpoint is involved	Apply addition and subtraction of vectors, multiplication of vectors by a scalar, and diagrammatic and column representations of vectors G25 apply addition and subtraction of vectors, multiplication of vectors by a scalar, and diagrammatic and column representations of vectors

Mathematics – Unit 23 – Probability	
Knowledge and Skills – Students will be taught to…	Links to KS4 National Curriculum (red) & Exam board specification (blue)
- Use a theoretical probability to identify a total - Find a missing probability in a table of numerical probabilities - Review: Use experimental data to identify relative frequencies and make predictions of theoretical probability - Review: Calculate the expected outcomes of a probability experiment - Review: Construct/complete a probability tree diagram for two events - Review: Use a probability tree diagram to calculate probabilities	Apply the property that the probabilities of an exhaustive set of mutually exclusive events sum to one Calculate the probability of independent and dependent combined events, including using tree diagrams and other representations, and know the underlying assumptions Use a probability model to predict the outcomes of future experiments; understand that empirical unbiased samples tend towards theoretical probability distributions, with increasing sample size P4 apply the property that the probabilities of an exhaustive set of outcomes or mutually exclusive events sum to one P8 calculate the probability of independent and dependent combined events, including using tree diagrams and other representations, and know the underlying assumptions P3 relate relative expected frequencies to theoretical probability, using appropriate language and the 0-1 probability scale P5 understand that empirical unbiased samples tend towards theoretical probability distributions, with increasing sample size