Bellerive FCJ Catholic College

Department: Mathematics **Year Group: 10**

Half term	Module	Learning Focus	Key Knowledge and Skills	Additional Higher Content	Assessment	Challenge and Enrichment
1	1	Indices	Understand and calculate squares, cubes, powers, and roots, apply index laws, and solve equations involving positive and negative roots.	Estimate and calculate powers and roots, including fractional, positive, and negative indices, and apply index laws for multiplication and division.	Mini white board assessment Fortnightly mini assessment of content covered. Weekly Sparx homework on content covered with feedback.	Maths genie - Indices Corbett maths indices Fractional Indices
		Algebra	Use algebraic notation correctly, manipulate and simplify expressions, write and factorise expressions including squares, cubes, and brackets, and apply multiplication and collection of like terms to solve problems.	Multiply two or more binomial expressions.	Mini white board assessment Fortnightly mini assessment of content covered. Weekly Sparx homework on content covered with feedback.	Dr Austin Algebra Collecting like terms
		Equations & Formulae	Solve linear equations using inverse operations, apply and rearrange formulae, substitute values, and evaluate functions using notation such as $f(x)$.		Mini white board assessment Fortnightly mini assessment of content covered. Weekly Sparx homework on content covered with feedback.	Dr Austin Algebra Solving equations Solving Equations Equations with fractions Corbett maths solving equations
		Solving Inequalities	Understand and solve linear inequalities, distinguish inequality symbols, and represent solutions accurately on a number line.	Set up inequalities based on the information given in the question.	Mini white board assessment Fortnightly mini assessment of content covered. Weekly Sparx homework on content covered with feedback.	Solving Inequalities Inequalities
		Solve quadratics by Factorising	Factorise quadratic expressions, including trinomials and differences of squares, and solve quadratics by factorising.	Factorise and solve quadratic equations, including rearrangements, and simplify algebraic fractions by cancelling and factorising.	Mini white board assessment Fortnightly mini assessment of content covered. Weekly Sparx homework on content covered with feedback.	Factorising quadratics
		Linear Simultaneous Equations	Solve simultaneous linear equations using elimination, substitution, or graphically, and set up equations to model problems.		Mini white board assessment Fortnightly mini assessment of content covered. Weekly Sparx homework on content covered with feedback.	Simultaneous Equations

		Sequences	Generate and analyse linear, quadratic, and geometric sequences, determine nth terms, continue patterns, and solve related problems including arithmetic progressions and Fibonacci-type sequences.		Mini white board assessment Fortnightly mini assessment of content covered. Weekly Sparx homework on content covered with feedback.	Quadratic sequences
		Ratio	Understand, simplify, and represent ratios (including as fractions and in forms like 1:n), apply them to solve problems in geometry, measurement, statistics, and real-life contexts (like best buys and scale drawings), and use methods such as the unitary method and linear equations to interpret and compare quantities accurately.		Mini white board assessment Fortnightly mini assessment of content covered. Weekly Sparx homework on content covered with feedback.	Ratio Questions
2	2	Perimeter and area	Calculate the perimeter and area of simple and compound shapes, including rectangles, triangles, and grid-based figures.		**Module 1 Assessment** Mini white board assessment Fortnightly mini assessment of content covered. Weekly Sparx homework on content covered with feedback.	Area & Perimeter
		Circumference and area	Understand and use the properties, terminology, and formulas of circles to identify parts, draw accurately, and calculate circumference, area, and fractional areas or perimeters using radius or diameter.		Mini white board assessment Fortnightly mini assessment of content covered. Weekly Sparx homework on content covered with feedback.	2D Shapes – Circles
		Volume	Recall and use volume formulas to calculate the volume of cubes, cuboids, cylinders, prisms, and compound solids.		Mini white board assessment Fortnightly mini assessment of content covered. Weekly Sparx homework on content covered with feedback.	3D Shapes & Volume
		Properties of Polygons	Recall, identify, classify, and draw quadrilaterals using their properties, names, and symmetries.		Mini white board assessment Fortnightly mini assessment of content covered. Weekly Sparx homework on content covered with feedback.	2D Shapes – Polygons

3		Angles	Understand, identify, name, estimate, and calculate angles using properties of lines, triangles, quadrilaterals, and polygons; apply rules and proofs for angle sums, and use terminology and reasoning to justify answers.		Mini white board assessment Fortnightly mini assessment of content covered. Weekly Sparx homework on content covered with feedback.	Angles Questions
		Circle Theorem (H only)		Understand and use circle theorems involving tangents, chords, perpendiculars, and the construction of inscribed regular polygons.	Mini white board assessment Fortnightly mini assessment of content covered. Weekly Sparx homework on content covered with feedback.	Search: Circle Theorems
		Pythagoras' theorem	Recall and apply Pythagoras' theorem to solve 2D problems.	Apply Pythagoras' theorem to solve 3D problems.	Mini white board assessment Fortnightly mini assessment of content covered. Weekly Sparx homework on content covered with feedback.	Search: Pythagoras
		Right-angled Trigonometry	Recall and apply Pythagoras' theorem and trigonometric relationships to solve problems in 2D and 3D, including bearings and angles between lines and planes.	Recall and apply trigonometric relationships to solve 3D problems.	Mini white board assessment Fortnightly mini assessment of content covered. Weekly Sparx homework on content covered with feedback.	Search: Trigonometry
	3	Representing Data	Interpret, construct, and draw various charts and graphs for different data types, understand sampling and its limitations, and use time-series graphs to analyse trends and make predictions.	Calculate quartiles and interquartile range, compare diagrams to evaluate hypotheses, and use measures of central tendency and dispersion to describe populations.	**Module 3 Assessment** Mini white board assessment Fortnightly mini assessment of content covered. Weekly Sparx homework on content covered with feedback.	Averages / Representing Data
		Summarising data	Classify data types, choose suitable diagrams, distinguish data groupings and sources, calculate measures of central tendency for frequency distributions, identify outliers, and analyse data patterns to draw conclusions.	Select an appropriate average based on data type and compare distributions using averages and interquartile ranges to evaluate hypotheses.	Mini white board assessment Fortnightly mini assessment of content covered. Weekly Sparx homework on content covered with feedback.	Data & Distributions
		Histograms CF graphs (H only)		Estimate medians from histograms, select appropriate averages, compare distributions using averages and interquartile ranges to	Mini white board assessment Fortnightly mini assessment of content covered. Weekly Sparx homework on content covered with feedback.	Frequency, Box Plots, Histograms

				evaluate hypotheses, and construct and interpret histograms, cumulative frequency graphs, and box plots		
4	4	Basic number and decimals	Understand and apply place value, order and operate with integers and decimals (including positive and negative), recall key arithmetic facts, interpret remainders, perform money calculations correctly, and grasp essential household finance terms like profit, loss, tax, and interest.	Solve functional multi-step problems using written methods	Mini white board assessment Fortnightly mini assessment of content covered. Weekly Sparx homework on content covered with feedback.	Negative Numbers & Rounding
		Factors and multiples	Identify multiples, factors, and prime numbers; list multiples and factors to find common ones; express numbers as prime factors; and use formal and informal methods to determine HCF and LCM.		Mini white board assessment Fortnightly mini assessment of content covered. Weekly Sparx homework on content covered with feedback.	Factors & Multiples
		Accuracy (inc .rounding, est)	Round numbers to various precisions, use inequality notation for error intervals, make and evaluate sensible estimates and approximations, interpret measurement scales accurately, and understand measurement limitations and unit dependence in real-life contexts.		Mini white board assessment Fortnightly mini assessment of content covered. Weekly Sparx homework on content covered with feedback.	Error Intervals / Estimation
		Bounds	Recognise and apply limits of accuracy by understanding measurement errors up to ±0.5 and using inequality notation for error intervals.	Write maximum and minimum values for rounded numbers, combine bounds to find overall extremes (e.g., max of a–b from max a and min b), and understand how upper/lower limits apply to discrete and continuous variables, including context-based variations like currency.	Mini white board assessment Fortnightly mini assessment of content covered. Weekly Sparx homework on content covered with feedback.	Upper & Lower Bounds
		Fractions	Identify, simplify, and compare fractions (including mixed and improper forms), add and subtract using common denominators, calculate fractions of quantities, and apply all four operations with or without a calculator.		Mini white board assessment Fortnightly mini assessment of content covered. Weekly Sparx homework on content covered with feedback.	Fractions Practice
5		Basic Percentages	Define percentage as parts per 100; express, compare, and calculate percentages (including	Convert between recurring decimals and fractions,	Mini white board assessment	Percentages

			over 100% and percentage changes); apply percentages in real-life and shapes; convert between fractions, decimals, and percentages; and compare/order their values.	including using formal algebraic proofs.	Fortnightly mini assessment of content covered. Weekly Sparx homework on content covered with feedback.	
		Calculating with Percentages	Solve percentage increase/decrease problems, calculate one quantity as a percentage of another, work with proportions in percentages/decimals/fractions, calculate reverse percentages, and solve simple interest problems.		Mini white board assessment Fortnightly mini assessment of content covered. Weekly Sparx homework on content covered with feedback.	Percentage Change & Reverse
		Growth and decay	Solve repeated proportional change and compound interest problems using calculators to explore exponential growth and decay with multipliers and powers.	Model and solve growth and decay problems using multipliers and iterations, recognize limiting values, draw and interpret exponential graphs, and understand real-world constraints and assumptions in exponential growth.	Mini white board assessment Fortnightly mini assessment of content covered. Weekly Sparx homework on content covered with feedback.	Growth and Decay
		Surds	Simplifying surds	Rationalise denominators, simplify and expand expressions with surds, and solve equations involving surds.	Mini white board assessment Fortnightly mini assessment of content covered. Weekly Sparx homework on content covered with feedback.	Search: Surds
		Standard Form	Understand, convert, calculate, and solve problems using standard form, with or without a calculator.		Mini white board assessment Fortnightly mini assessment of content covered. Weekly Sparx homework on content covered with feedback.	Standard Form Practice
6	5	Sampling and Capture-Recapture		Understanding sampling methods, applying the capture-recapture formula to estimate population size, recognizing assumptions and limitations, and interpreting results accurately.	**Mock Exams** Mini white board assessment Fortnightly mini assessment of content covered. Weekly Sparx homework on content covered with feedback.	Search: Sampling
		Scatter graphs	Recognise and describe types and strengths of correlation, understand correlation vs. causation, draw and use lines of best fit while considering outliers, identify data patterns and unusual		Mini white board assessment Fortnightly mini assessment of content covered.	Scatter Graphs & Correlation

			values, and evaluate how sample size and selection affect representativeness.		Weekly Sparx homework on content covered with feedback.	
		Systematic Listing	Identify and represent permutations and combinations in various formats.	Understand that if task 1 has x ways and task 2 has y ways, then both tasks combined have $x \times y$ ways.	Mini white board assessment Fortnightly mini assessment of content covered. Weekly Sparx homework on content covered with feedback.	Listing Strategies
		Basic Probability	Record and analyse probabilities using tables and trees; apply concepts of randomness and fairness to calculate expected outcomes; relate expected frequencies to theoretical probability; design and complete two-way tables; use probability rules for exhaustive and mutually exclusive events; construct possibility spaces; and understand how larger samples approach theoretical probabilities.		Mini white board assessment Fortnightly mini assessment of content covered. Weekly Sparx homework on content covered with feedback.	Probability Basics
		Probability (Trees and Venns)	Complete tables, grids, and tree diagrams to show outcomes and probabilities; understand probability notation (P(A), P(A'), P(A∪B), P(A∩B)); interpret and use Venn diagrams with up to two sets; solve related problems; know when to add or multiply probabilities; understand independence, dependence, and effects of replacement in events; and use tree diagrams for calculating probabilities.	Understand conditional probability and effects of replacement; complete and use tree and Venn diagrams to calculate conditional probabilities.	Mini white board assessment Fortnightly mini assessment of content covered. Weekly Sparx homework on content covered with feedback.	Tree & Venn Diagrams