

Year 9 – PathwayA&B	Unit	Key Knowledge learnt Covid Catch up	Cross Curricular Links	Real world applications
Half Term 1	Number, Ratio and percentages	<ul style="list-style-type: none"> • Recognise prime numbers • Express a composite number as a product of its prime factors • Represent the prime factorisation of a number in index notation • Find the highest common factor and lowest common multiple • Prime factorisation to find the square and cube root • round numbers to a required number of given degree of accuracy • Estimate quantities to an appropriate degree of accuracy • Checking for rounding errors in the intermediate steps of calculations • Compare quantities by ratio • Describe the relationship between ratio and fraction • Divide a quantity in a given ratio (2 or more parts) • Understand and use the scale of a plan or a map • Solve problems involving rate in daily life • Recognise the relationships between distance, time and speed • Recognise the concepts of constant speed and average speed • Write speed in different units and convert it from one unit to another • Solve problems involving speed • Calculate simple interest • Solve problems involving reverse percentage • Calculate repeated percentage change • Calculate compound interest • Solve problems involving growth and depreciation 	<p>Calculating percentage yield and atom economy in chemistry.</p> <p>Calculating speed, distance, and time as part of physics.</p> <p>Calculating percentage increase/decrease in data from geographical sources.</p> <p>Compound interest has links to finance through mortgage repayments and investment returns.</p>	<p>When you're shopping in the grocery store and trying to stay within a budget, for example, you estimate the cost of the items you put in your cart to keep a running total in your head. When you're purchasing tickets for a group of people or splitting the cost of dinner between 8 friends, we estimate for ease. Contractors or consultants often work in a world of estimates.</p> <p>Knowing the difference between speed and average speed is useful to not get caught speeding whilst driving.</p>
Half Term 2	Algebra	<ul style="list-style-type: none"> • Add & subtract linear expressions • Expanding, Simplifying, Factorising • Changing the subject of a formula • Linear equations with 2 variables • Solving Simultaneous equations • Expanding Quadratic Expressions & Factorisation of Quadratics • Cartesian Coordinates • Graph of linear functions • Gradients & Intercepts • Graphs for constant rate of change • Quadratic graphs, Exponential, and reciprocal graphs 	<p>Plotting graphs following an experiment in science.</p> <p>Looking at the population growth rate, within geography for specific countries.</p>	<p>The army has used coordinates for hundreds of years to pinpoint locations. Map coordinates use latitude and longitude, or grid systems created for specific countries or areas. For example, NATO uses the Military Grid Reference System.</p>

Half Term 3	Geometry 2D & 3D	<ul style="list-style-type: none"> • Circumference & area of circles • View 3D of nets • Volume & Surface of Prisms, Cylinders, Composite shapes • Volume & Surface area of cones, pyramids • Perpendicular bisectors, lines and angles • Construction of triangles and quadrilaterals • Loci 	<p>Being able to sketch objects in Art.</p> <p>Being able to create 3D Models from a design concept in Design Technology.</p>	<p>Calculating the amount of paint needed to cover walls.</p> <p>Calculating the amount of wrapping paper need to wrap an item.</p> <p>Loci is useful when installing lights, alarms and noting the coverage.</p>
Half Term 4	Statistics & Probability	<ul style="list-style-type: none"> • Line graphs, Pie charts, Scatter graphs • Misuse of statistical graphs • Mode, Median, Range, Mean • Probability of single, combined events & mutually exclusive events • Introduction to sets • Venn diagrams and complement of a set, Union & intersection of a set 	<p>Skills that are developed here can then be transferred to their Geography/History lessons and interpret the graphs and charts.</p>	<p>Pie Charts are very useful in the business, statistics, analytics, mass media. They have been used in the past to show the percentage of votes each part receives in a general election.</p>
Half Term 5	Geometry	<ul style="list-style-type: none"> • Properties of angles, Angles in parallel lines • Transformations, Congruent figures, congruent triangles • Similarity, Enlargement, scale drawing • Pythagoras theorem • Intro to trigonometry 	<p>Being able to draw objects to scale in Design Technology.</p>	<p>Scale drawing and Enlargements are used extensively in Architectural design.</p> <p>Trigonometry and Pythagoras theorem is used in engineering, for example, slope of a roof, drainage systems.</p>
Half Term 6	Geometry & FDP	<ul style="list-style-type: none"> • Application of trigonometry • Bearings • Number patterns, general term of a sequence, Nth term • Convert FDP • Solving problems involving FDP • Recurring decimals 	<p>Application of Trigonometry would be used to calculate missing lengths of shapes, particularly useful in Design Technology.</p>	<p>When an embryo is developing, the numbers of cells it contains form a sequence. Understanding this sequence can help doctors select healthy embryos for IVF. Doctors look for cells that are dividing in the pattern 1, 2, 4, 8, ... These are classed as healthy eggs and have good potential for producing pregnancy</p>
Assessments		<ul style="list-style-type: none"> • 4 x large exams per year (2 calc, 2 non calc) • X2 GL assessments • X6 End of Half term content tests 		