SUBJECT: Number	JBJECT: Number CURRICULUM PROGRESSION PATHWAYS CL: Miss Z. Bradshaw and Miss A. Hazell						
<u>Year 7</u>	<u>Year 8</u>	<u>Year 9</u>	KS4 Foundation pathway	KS4 Higher pathway	KS5 (Level 3) A-level Mathematics/Core Mathematics	Further Education and training	Careers
 Approximation, estimation and rounding Round money to the nearest pound or penny Write decimals in order of size Round decimals to the nearest integer and 1 DP Round decimas to make estimations Round to multiples of ten 	 Approximation, estimation and rounding Round to more than 1 DP Round to a given number of significant figures Round to an appropriate degree of accuracy 	Approximation, estimation and rounding • Find upper and lower bounds of a measurement and calculate error intervals	Approximation, estimation and rounding • Use inequality notation to specify simple error intervals and truncated intervals	 Approximation, estimation and rounding Find upper and lower bounds and use inequality notation to specify simple error intervals and truncated intervals Calculate upper and lower bounds 	 Modeling and Estimation Standard form Use estimation techniques to solve real world problems(Core Maths) Use rounded and unrounded values in calculations to maintain accuracy 	 Natural Sciences Business and Finance Psychology Banking Accountancy 	 Actuarial Science Aeronautical Engineering Chemical Engineering Civil Engineering Economics Electrical/Electroni c Engineering Engineering (General) Mathematics
 Roots and powers Use a calculator or mental calculation to find squares and square roots Use index form for powers and use in the property of operations 	 Roots and powers Calculate using squares, square roots, cubes and cube roots Give integers that a square root lies between Use priority of operations to calculate with powers, root and brackets and check answers on calculators 	 Roots and powers Calculate combinations of indices, root, fractions and brackets including [-]] and estimate these answers Use index laws to simplify numerical expressions Understand negative and zero indices Use powers of tens and their prefixes both positive and negative 	Roots and powers	 Roots and powers Recognize powers of 2,3,4 and 5 Understand surd notation on a calculator Multiply and divide in standard form Add and subtract in standard form Use fractional indices Understand laws of surds and apply these to simplify and rationalise surds where the denominator is just a single surd Expand brackets with surds and 	 Roots and powers Use indices and percentages with compound interest and finance (Core Maths) Use laws of indices with positive, negative and fractional powers, rationalising surds (A-level) Number properties Understand different types of numbers: natural, rational, complex, integers, 		 Mechanical Engineering Physics Statistics Council and city planning Microbiology Astronomy

Core knowledge and skills mapped across the curriculum



 Number properties Order directed numbers Find all factor pairs of an integer Identify common factors Find the HCF and LCM using listing strategies Recognise prime and square numbers 	 Number properties Write a number as a product of its prime factors including index form Use prime factor decomposition to find HCF and LCM 	 Write large and small numbers in standard form Order numbers in standard form Enter and read numbers in standard form from a calculator Number properties Use inequality symbols with numbers 	 Number properties Recognize powers of 2,3,4 and 5 Understand surd notation on a calculator Multiply and divide in standard form Add and subtract in standard form 	 rationalise where the conjugate is needed Number properties Understand the difference between rational and irrational numbers 	 consecutive(A- level) Work with finite and infinite number sequences (A- level) Fractions Decimals Percentages, Calculations Use scientific and graphical calculators effectively Calculate with personal finance data: budgeting, income tax, national insurance, debt management, VAT, mortgage, exchange rates, investments and inflation
 Fractions Use fraction notation to describe parts of a shape Compare and order fractions with the same denominator using pictorial and non pictorial representations 	 Fractions Order and compare fractions with different denominators Adding and subtracting fractions with different denominators Multiply integers and fractions by a fraction Divide both integers and fractions by fractions by fractions 	Fractions	Fractions • Divide a fraction by a whole number	Fractions	(Core Mains)

Core knowledge and skills mapped across the curriculum





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 Convert improper fractions to a mixed number Identify equivalent fractions Simplify fractions Add and subtract fractions with common denominators that lead to simplification Find fractions of an amount Write one quantity as a fraction of united to simplify and the second secon	 Find the reciprocal of a number Convert mixed numbers to improper Apply all four operations to mixed numbers 				
 another Decimals Add and subtract decimals of any magnitude Multiply and divide decimals by a single digit integer Divide numbers that give decimal answers Convert between fractions, decimals and percentages 	 Decimals Multiply and divide decimals by integers with more than one digit Multiply and divide decimals by other decimals up to 2 DP Order decimals of any size, including positive and negative Multiply and divide by negative powers of 10 Recognise recurring and terminating decimals Order fractions by converting to decimals or equivalent fractions Change time to decimal hours 	Decimals	Decimals	Decimals • Convert recurring decimals into fractions	





 Percentages Understand percentages is a 	 Using equivalence of FDP to compare proportions Percentages Express one number as a percentage of 	Percentages • Find original values using	Percentages • Calculate simple interest	Percentages • Calculate simple interest	
 number as parts of 100 Using different strategies to calculate percentages of an amount with and without a calculator Express one quantity as a percentage of another 	 another, when the units are different Increase or decrease by a given percentage (calc and non calc) including by the use of multipliers Use the unitary method to solve percentage problems 	reverse percentages • Calculate percentage change	 Calculate repeated percentage change including compound interest and other growth and decay problems Calculate profit or loss Extend expressing a number as a percentage of another in complex situations 	 Calculate repeated percentage change including compound interest and other growth and decay problems Use iterative methods and formula to solve growth an decay problems 	
 Calculations Know and apply order of operations Recall and use multiplication facts up to 10x10 Know and use the associative law, distributive law and commutative law Multiplying and divide integers and decimals by multiples of 10 	 Calculations Use written methods to add and subtract more than two numbers, including decimals Use and apply the divisibility laws Apply all four operations now to positive and negative numbers including larger numbers and division 	Calculations	 Use appropriate systematic listing strategies Explore simplifying calculations by cancelling Use one calculation to find the answers of another 	 Calculations Use appropriate systematic listing strategies Use product rule for counting Use one calculation to find the answers of another 	

Core knowledge and skills mapped across the curriculum





Use estimation and inverse operations to check answers for integers and decimals			
 Apply the four operations to integers using written methods 			
 Solve a variety of different problems using a calculator (time, money etc) 			
 Add and subtract positive numbers 			
 Begin to multiply with negative numbers 			



