Y7-11 Order of Scheme of Learning 2022-23

	Y7	Y8	Y9	Y10	Y11
HT1	N1/2	N4/5 - Block 2	N4/5 - Block 3	N4/5 - Block 4	S4 - Block 5
6.5 weeks	A3/4	A3/4 - Block 2	D1 - Block 3	A3/4 - Block 4	D2 - Block 5
	A2		A2 - Block 3		S3 - Block 5
HT2	S1	A2 - Block 2	A3/4 - Block 3	S4 - Block 4	N3 - Block 5
7 Weeks	N4/5	D1 - Block 2	S4 - Block 3	D2 - Block 4	S2 - Block 5
	D2	S1 - Block 2	S2 - Block 3	N3 - Block 4	
HT3	N3	S4 - Block 2	D2 - Block 3	A1 - Block 5	
6.5 weeks	S2	N3 - Block 2	N3 - Block 3	S1 - Block 5	
	A1	A1 - Block 3		S3 - Block 4	
HT4	S3	S2 - Block 2	S3 - Block 3	N1/2 - Block5	
5 weeks	D1	D2 - Block 2	N1/2 - Block 4	A2 - Block 5	
HT5	D1 contd	S3 - Block 2	A1 - Block 4	D1 - Block 5	
6 weeks	S4	N1/2 - Block 3	S1 - Block 4	S2 - Block 4	
HT6	N1/2 - Block 2	S1 - Block 3	A2 - Block 4	N4/5 - Block 5	
6.5 weeks	A1 - Block 2		D1 - Block 4	A3/4 - Block 5	

Y7
HT1 6.5 weeks

Content in italics is *foundation plus* , content in bold and or underlined is **higher/higher plus** - in some sections, higher content is separate at the bottom of a unit.

HT2 7 Weeks

	N1 N2 Block 1 (3 weeks)	A3 A4 3 weeks Y7 HT3	A2 2 weeks Y7 HT2
	· Understand and use place value of whole numbers and decimals · Compare and order whole numbers and decimals (use of inequalities), and **negative numbers.** · Addition and subtraction 4 digits or more with 1 dp using formal column method, or **any number of decimal places.** · Solve questions in context involving addition and subtraction (money, mass, length and time) · Know and use multiplication tables · Long multiplication up to 4 digit by 2 digit, **any number of digits including decimals.** · *Multiply and divide decimals by powers of 10,* ***multiplying and dividing any number by any power of 10 including 0.1, etc*** · Division of whole numbers. More than 4 digits by 1 digit. Understanding remainders as fractions · Solve mult and div problems in context · Round numbers to nearest whole, **or any number of decimal places.** · Make simple estimates (using nearest 10/100) **and decimal estimates.**	• Language of algebra: terms, expressions, equations, identities, inequality • Add and subtract like terms including expressions with integers • Write simple statements as algebraic expressions; e.g. m+1 and 2m • Use function machines including finding input given output • Solve simple one step equations using diagrams • Solve simple one step equations using a flow chart and inverse operations · **Collect like terms to simplify, e.g. ab in place of a × b, 3y = y + y + y = 3 × y, a^2 = a × a, a^3 = a × a × a and a^2b = a × a × b and division expressed as a fraction, link simplifying to perimeter, area** · **Multiply and divide terms (including use of powers)** · **Expand brackets: application of simplifying** · **Form equations and expressions from real life contexts, expressing missing number problems algebraically** · **Solve two step equations (simple whole number answers, extension to simple *decimal, fraction or negative answers*) - extend as suitable**	• Substitute numbers into 1-step and 2-step function machines (mappings) • Substitute numbers into very simple expressions and functions • Plot and recognise coordinates in 4 quadrants, link to properties of polygons • **Plot and recognise linear graphs, real life graphs such as distance time graphs.**
Common misconceptions:	Multiplying/dividing by powers of 10 is just adding or removing zeros, 4.128 is larger than 4.3	a + a + a = a^3	a = 1, b = 2 ; co-ordinates reversed
NC Codes	N1, N2, N3, N14, N15, N16	A1, A3, A4, A6, A7, N2, A21	A1, A2, A3, A4, A7, A8, A9
Key Words	Tier 2: Value, positive, negative, addition, subtraction, decimal, sum, compare, integer, estimate, rounding, significant, interpret, inequality, multiply, divide, remainder, power, operation, appropriate, fraction	Tier 2: terms, expressions, equations, , variable, function, inverse, identities, inequality Tier 3: like terms, simplify, expand, identities, inequality	Tier 2 Substitute, expression, function, formula, axes, scale, plot, interpret, linear, quadrants, horizontal, vertical, identify, gradient Tier 3: algebraic, polygons
Homework	Hegarty maths tasks linked to current topic and ability of classes	Hegarty maths tasks linked to current topic and ability of classes	Hegarty maths tasks linked to current topic and ability of classes
Career links	Accountant https://www.unifrog.org/student/careers/keywords/management-accountant	Chemical engineer https://www.unifrog.org/student/careers/school-subjects/chemical-engineer	Bus or Coach Driver https://www.unifrog.org/student/careers/keywords/bus-or-coach-
Employability skills	Aiming high Numeracy Creativity Literacy Independence Listening Communication Presenting Teamwork Problem solving Staying positive Leadership	Aiming high Numeracy Creativity Literacy Independence Listening Communication Presenting Teamwork Problem solving Staying positive Leadership	Aiming high Numeracy Creativity Literacy Independence Listening Communication Presenting Teamwork Problem solving Staying positive Leadership
Assessment	N1 and N2 in class formal assessment, followed by common misconceptions and corrections lesson.	A3/4 in class formal assessment, followed by common misconceptions and corrections lesson.	A2 in class formal assessment, followed by common misconceptions and corrections lesson.
	Half Term Assessment: Units N1, N2, A2, A3, A4		

	S1 (Block 1) 1-2 weeks	N4 N5 (Block 1) 3 weeks	D2 (Block 1) 1 Week including HTT
	• Choose the appropriate unit for various measures (e.g. length of a bus) • Use of a ruler to draw lines of a given length, introducing basic shape notation e.g. draw line AB = 5cm, link with polygons • Read scales with simple divisions, introduce scales as a concept on maps or scale drawings. • Solve time calculations, compare times in minutes with fractions of hours. • Calculate the perimeter of polygons and simple compound shapes • Find area of rectangles, triangles, simple compound shapes, **circles** • Introduce notation referring to sides in polygons. E.g. rectangle ABCD has lengths AB = 8cm and BC = 3cm, identify parallel and perpendicular lines in polygons • Calculate lengths in rectangles given one side and the area (link to A3 Simplify)	**FDPR Eqiuvalence/convert and fraction arithmetic** · Fractions and decimals: change between tenths/hundredths and their decimal equivalents · Know that percentage is a fraction out of 100 and convert simple fractions to % · Express something as a very simple ratio and simplify, *introduce link between ratios and fractions* **Fractions** · Shade fractions of shapes · Find equivalent fractions (using shapes and multiplication facts) and simplify fractions · *Compare and order fractions with different denominators.* **Fractions and percentages of amounts** · Find a fraction of an amount (unit fractions and above with whole numbers), add and subtract fractions with the same *and different* denominators. · Use number lines and fractions to find percentages of very simple amounts; · Find 10%, 50%. 25% and 75% of amounts and know fraction equivalents **Higher:** Percentage increase and decrease, in context including simple interest, introduce compound interest **WITHOUT multipliers.** Fraction arithmetic - all four operations including mixed numbers. Fractions of amounts **Reverse percentage (non calc)**	• Decide if events are certain, impossible or uncertain • Use words to describe how likely an event might be • Put events in order of likelihood • Express probabilities numerically, **begin to consider combined events in sample spaces and experimental probabilities.**
Common misconceptions:	Confusing area and perimeter, using wrong scale on ruler, one hour = 100 mins	1/4 = 1.4, adding denominators of fractions	Overanalysing situations when finding a worded probability
NC Codes	G14, G15, G16, R13, R1, G9	N1, N2, N10, N11, N12, N13, R3, R4, R5, R9, R16	P1, P2, P3, P5
Key Words	Tier 2: Units, perimeter, area, compound, square, rectangle, triangle, measurement, mass, units, formula. Tier 3: quadrilateral, circumference, radius, diameter, tangent, chord, sector, trapezium.	Tier 2: Percentage, decimal, ratio, fraction, equivalent, percentage, percentage increase, percentage decrease, percentage change, proportion, direct and inverse proportion. Tier 3: Numerator, denominator, simple interest, compound interest, multiplier, mixed number, improper fraction, reverse percentage, depreciation.	Tier 2: Likelihood, certain, impossible, unlikely, likely, experiment. Tier 3: Probability, outcome, even chance.
Homework	Hegarty maths tasks linked to current topic and ability of classes	Hegarty maths tasks linked to current topic and ability of classes	Hegarty maths tasks linked to current topic and ability of classes
Career links	Landscaper https://www.unifrog.org/student/careers/keywords/landscaper	Tax Inspector https://www.unifrog.org/student/careers/school-subjects/tax-inspector	Risk Manager https://www.unifrog.org/student/careers/school-subjects.k1/risk-management-
Employability skills	Aiming high Numeracy Creativity Literacy Independence Listening Communication Presenting Teamwork Problem solving Staying positive Leadership	Aiming high Numeracy Creativity Literacy Independence Listening Communication Presenting Teamwork Problem solving Staying positive Leadership	Aiming high Numeracy Creativity Literacy Independence Listening Communication Presenting Teamwork Problem solving Staying positive Leadership
Assessment	S1 in class formal assessment, followed by common misconceptions and corrections lesson.	N4/5 in class formal assessment, followed by common misconceptions and corrections lesson.	D2 in class formal assessment, followed by common misconceptions and corrections lesson.
	Half Term Assessment: Units N1, N2, A2, A3, A4, S1, N4, N5, D2		

Y7 HT3 6.5 weeks

	N3(Block 1) 1 -2 weeks	S2 (Block 1) 1-2 weeks	A1 (Block 1) 1 week including HTT
	• Find common factors of two numbers (up to 20) by listing • Find common multiples of two numbers (up to 20) by listing • Know prime numbers up to 30. *(investigate prime factor* • Know square numbers up to 10x10, compute basic calculations with square numbers • Use divisibility tests for 2,3,5 and 10 • Order of operations (BIDMAS) • **Introduce standard form**	• Identify types of angles • Estimate the size of angles • Measure and draw angles • Calculate missing angles on a straight line • Calculate missing angles around a point • Write expressions in terms of x for angle facts to begin to solve problems formally **extend to unknown angles of equal size, i.e. isosceles triangles, multiple values labelled in terms of x**	• Recognise arithmetic sequences, use and find a term to term rule for arithmetic sequences, including sequences involving negatives and decimals. **Find the nth term for a linear sequence** • Substitute values into rules to generate terms in the sequence • Investigate other sequences, Fibonacci, square and triangle numbers Key skills consolidation/revision/etc
Common misconceptions:	Confusing factors and multiples, 1 is a prime number.	Reading a from the wrong scale on a protractor.	Subsituting e.g. n = 3 into 2n and obtaining 23
NC Codes	N3, N4, N6, N7, N9	G2, G3, G1, G14, G15	A23, A24
Key Words	Tier 2: Factor, common, multiple. Tier 3: highest common factor, lowest common multiple, prime number, square number, square root, indices, factorisation,	Tier 2: Estimate, Measure, Calculate. Tier 3: Angle, acute, obtuse, reflex, right angle, protractor, isosceles triangle, equilateral triangle.	Tier 2: Term, sequence, Tier 3: arithmetic, linear, substitute, Fibonacci, square number, triangle number
Homework	Hegarty maths tasks linked to current topic and ability of classes	Hegarty maths tasks linked to current topic and ability of classes	Hegarty maths tasks linked to current topic and ability of classes
Career links	Microbiologist https://www.unifrog.org/student/careers/school-subjects.k1/microbiologist	Architect https://www.unifrog.org/student/careers/school-subjects.k1/architect	Choreographer https://www.unifrog.org/student/careers/school-subjects.k1/architect
Employability skills	Aiming high Numeracy Creativity Literacy Independence Listening Communication Presenting Teamwork Problem solving Staying positive Leadership	Aiming high Numeracy Creativity Literacy Independence Listening Communication Presenting Teamwork Problem solving Staying positive Leadership	Aiming high Numeracy Creativity Literacy Independence Listening Communication Presenting Teamwork Problem solving Staying positive Leadership
Assessment	N3 in class formal assessment, followed by common misconceptions and corrections lesson.	S2 in class formal assessment, followed by common misconceptions and corrections lesson.	A1 in class formal assessment, followed by common misconceptions and corrections lesson.
	Half Term Assessment: Units N1, N2, A2, A3, A4, S1, N4, N5, D2, N3, S2, A1		

HT4 5 weeks

	S3 (Block 1) 2 weeks	D1 (Block 1) 2-3 weeks with HTT - continue into HT5
	• Know the names of 2D shapes and their properties, including key terminology such as quadrilaterals, regular and irregular polygons etc • Plot coordinates in 4 quadrants, link to polygons • Identify regular polygons by measuring sides and angles • Classify properties of triangles • Identify properties of 3D shapes, name 3D shapes • Identify *and construct* nets of simple 3D shapes • **Draw nets, plans and elevations of 3D shapes**	• Plan a survey (hypothesis, collect data, sort data into tables. draw diagrams, analysis) • Collect data using tally chart and frequency table • Diagrams: pictograms, line graphs / bar charts • Diagrams: Simple pie charts using fractions (limited to ½; ¼, 1/8ths) • Averages: mode, median **mean** and range, **mean from a frequency table.** • Make simple comparisons
Common misconceptions:	Co-ordinates swapped around, confusing names of 2D and 3D shapes	Axes labelled with numbers inside squares rather than on lines, confusing averages e.g. median and mean
NC Codes	G1, G11, G14, G15, G16, G17	S2, S3
Key Words	Tier 2: plan, regular, faces, edges, axes. Tier 3: Quadrilaterals, irregular, polygon, co-ordinates, quadrant, vertex, vertices, net, regular, elevation, cuboid, cube, sphere, cylinder, pentagon, hexagon, heptagon, octagon, nonagon, decagon	Tier 2: Primary Data, Secondary Data, Hypothesis, frequency, pictogram, bar chart. Tier 3: mean, median, mode, range, analysis, pie chart, random, systematic
Homework	Hegarty maths tasks linked to current topic and ability of classes	Hegarty maths tasks linked to current topic and ability of classes
Career links	Electrician https://www.unifrog.org/student/careers/school-subjects/electrician	Motorsport engineer https://www.unifrog.org/student/careers/featured/motorsport
Employability skills	Aiming high Numeracy Creativity Literacy Independence Listening Communication Presenting Teamwork Problem solving Staying positive Leadership	Aiming high Numeracy Creativity Literacy Independence Listening Communication Presenting Teamwork Problem solving Staying positive Leadership
Assessment	S3 in class formal assessment, followed by common misconceptions and corrections lesson.	D1 in class formal assessment, followed by common misconceptions and corrections lesson.
	Half Term Assessment: Units N1, N2, A2, A3, A4, S1, N4, N5, D2, N3, S2, A1, S3, D1	

HT5
6 weeks

	D1 (Block 1) - continued from HT4	S4 (Block 1) 1 week including HTT	
	• Diagrams: Simple pie charts using fractions (limited to ½; ¼, 1/8ths) • Averages: mode, median **mean** and range, **mean from a frequency table.** • Make simple comparisons	• Find lines of symmetry • Reflect a shape in a horizontal or vertical line (no axes) **(on a graph, identify reflections in axes)** • Rotate shapes around a centre • Find order of rotational symmetry	**Time for key skills consolidation, revision, catchup and extend. Begin revisit and extension of N1/2**
Common misconceptions:	see above	Reflection completed as a translation, confusion between horizontal and vertical	
NC Codes	see above	G7, G8	
Key Words	see above	Tier 3: Symmetry, Reflection, Horizontal, Vertical, Axes, Rotational Symmetry, Order	
Homework	Hegarty maths tasks linked to current topic and ability of classes	Hegarty maths tasks linked to current topic and ability of classes	
Career links	see above	Chemical engineer https://www.unifrog.org/student/careers/school-subjects/chemical-	
Employability skills	Aiming high Numeracy Creativity Literacy Independence Listening Communication Presenting Teamwork Problem solving Staying positive Leadership	Aiming high Numeracy Creativity Literacy Independence Listening Communication Presenting Teamwork Problem solving Staying positive Leadership	
Assessment	D1 in class formal assessment, followed by common misconceptions and corrections lesson.	S4 in class formal assessment, followed by common misconceptions and corrections lesson.	
	Half Term Assessment: Units N1, N2, A2, A3, A4, S1, N4, N5, D2, N3, S2, A1, S3, D1, S4		

HT5
6.5 weeks

	N1/N2 (Block 2) 3+ weeks (Revisiting and extend) including HTT	A1 (Block 2) - 1 week (Revisit and extend)
	· Understand and use place value of whole numbers and decimals · Compare and order whole numbers (including negatives and temperature context) and decimals (use of inequalities) · Addition and subtraction 4 digits or more with dps using formal column method · Solve questions in context involving addition and subtraction (money, mass, length and time) · Know and use multiplication tables · Long multiplication including decimals up to 2dp · Multiply and divide decimals by powers of 10, **including 0.1, 0.01 etc** · Division of whole numbers including those leading to decimal answers, **division of decimals by a whole number, division of decimals by a decimal.** · Interpret remainders as remainders, fractions or decimals · Perform mental calculations including mixed operations · Round numbers to any degree of accuracy **including significant figures**, calculator skills to practise rounding answers. · Use estimation to check answers and choose an appropriate degree of accuracy, **consider upper and lower bounds for rounded values**	• Generate terms in a sequence from a rule • Find the position-to-term (nth term) rule for linear sequences, **recognise linear, quadratic and geometric sequences** • Find the position-to-term rule from diagrams/contexts, **test whether a number is in a sequence by solving for n** • Solving number puzzles
Common misconceptions:	Multiplying/dividing by powers of 10 is just adding or removing zeros, 4.128 is larger than 4.3, rounding to dps involves resplacing digits with zeros	Subsituting e.g. n = 3 into 2n and obtaining 23
NC Codes	N1, N2, N3, N14, N15, N16	A23, A24
Key Words	Tier 2: Value, positive, negative, addition, subtraction, decimal, sum, compare, integer, estimate, rounding, significant, interpret, inequality, multiply, divide, remainder, power, operation, appropriate, fraction Tier 3: bounds, upper bound lower bound, significant figures	Tier 2: Term, sequence, Tier 3: arithmetic, linear, substitute, Fibonacci, square number, triangle number
Homework	Hegarty maths tasks linked to current topic and ability of classes	Hegarty maths tasks linked to current topic and ability of classes
Career links	Structural Engineer https://www.unifrog.org/student/careers/school-subjects.k1/structural-engineer	Road traffic accident investigator https://www.unifrog.org/student/careers/keywords/road-traffic-accident-investigator
Employability skills	Aiming high Numeracy Creativity Literacy Independence Listening Communication Presenting Teamwork Problem solving Staying positive Leadership	Aiming high Numeracy Creativity Literacy Independence Listening Communication Presenting Teamwork Problem solving Staying positive Leadership
Assessment	N1 and N2 in class formal assessment, followed by common misconceptions and corrections lesson.	A3/4 in class formal assessment, followed by common misconceptions and corrections lesson.
	Half Term Assessment: Units N1, N2, A2, A3, A4, S1, N4, N5, D2, N3, S2, A1, S3, D1, S4	

Y8 Statements in italics are *foundation plus* , statements in bold and or underlined are **higher/higher plus**

HT1 6.5 weeks

N4 N5 (Block 2) - 3 weeks	A3 A4 (Block 2) - 3 weeks with HTT
FDPR Eqiuvalence/convert and fraction arithmetic · Recall and use equivalencies between simple fractions, decimals and percentages including in different contexts · Associate a fraction with division and calculate decimal equivalents (e.g. 3/8 = 0.375) · Use common factors to find equivalent fractions; use common multiples to express fractions with the same denominator · Convert between mixed numbers and improper fractions · Compare and order fractions *including mixed numbers and improper fractions* · Add and subtract multiply and divide with proper fractions	• Collect like terms to simplify, e.g. ab in place of a × b, 3y = y + y + y = 3 × y, a^2 = a × a, a^3 = a × a × a and a^2b = a × a × b and division expressed as a fraction, link simplifying to perimeter, area • Multiply and divide terms (including use of powers) • Expand brackets: application of simplifying, **expand and factorise with one bracket, including powers** • Further simple expressions from real life contexts, expressing missing number problems algebraically - **link to perimeter, area, angles.** • Solve simple one step equations (balance method) • Solve two step equations (simple whole number answers, extension to simple *decimal, fraction or negative answers)* - ***solve equations requiring simplifying - e.g. with brackets or with unknowns on both sides***
Ratio · Express something as a ratio and simplify · Share into a ratio **(including 3 part ratios)** · Find a missing quantity in ratio problems using equivalence	• Simple rearranging, link to number facts e.g. if a + b = c, what is a equal to? • Inequality notation, finding integers that satisfy inequalities, **solving inequalities, representing inequalities on number lines.** • **Introduce simple simultaneous equations (pictures/context e.g. restaurant) and algebraic simultaneous equations**
Fractions and percentages of amounts · Recap percentages and fractions of amounts · Solve problems by finding a fraction of an amount · Solve problems by finding a percentage of an amount · Introduce Percentage Increase and Decrease	
Higher: Percentage increase and decrease (**using multipliers)**, percentage change. Fraction arithmetic - all four operations including mixed numbers. Introduce concept of direct and inverse proportion in context Compound interest with multipliers, solving multi step problems. Reverse percentage (non calc)	

Common misconceptions:	Adding denominators of fractions, diving by 20 to find 20% because you divide by 10 to find 10%, applying percentage of amounts techniques to reverse percentages problems.	Confusing inequality symbols, 8x = 4 means that x = 2 when avoiding formal methods to calculate.
NC Codes	N1, N2, N10, N11, N12, N13, R3, R4, R5, R9, R16	A1, A3, A6, A4, A5, A17, A18, A19, A21, A22
Key Words	Tier 2: Percentage, decimal, ratio, fraction, equivalent, percentage, percentage increase, percentage decrease, percentage change, proportion, direct and inverse proportion. Tier 3: Numerator, denominator, simple interest, compound interest, multiplier, mixed number, improper fraction, reverse percentage, depreciation.	Tier 2: terms, expressions, equations, , variable, function, inverse, identities, inequality , rearrange, satisfy Tier 3: like terms, simplify, expand, identities, inequality
Homework	Hegarty maths tasks linked to current topic and ability of classes	Hegarty maths tasks linked to current topic and ability of classes
Career links	Tax Inspector https://www.unifrog.org/student/careers/school-subjects/tax-inspector	Computer programmer https://www.unifrog.org/student/careers/keywords/computer-programmer
Employability skills	Aiming high Numeracy Creativity Literacy Independence Listening Communication Presenting Teamwork Problem solving Staying positive Leadership	Aiming high Numeracy Creativity Literacy Independence Listening Communication Presenting Teamwork Problem solving Staying positive Leadership
Assessment	N4 and N5 in class formal assessment, followed by common misconceptions and corrections lesson.	A3/4 in class formal assessment, followed by common misconceptions and corrections lesson.
	Half Term Assessment: Units N4, N5, A3, A4	

HT2 7 Weeks

A2 (Block 2) 2 Weeks	D1 (Block 2) - 2 weeks	S1 (Block 2) 2-3 weeks
• Substitute into formulae and expressions, link to BIDMAS for terms involving powers and coefficients e.g. $3x^2$ • Use a function machine including multi step/combinations of function machines, express such functions as algebraic expressions • Express a real-life situation as a simple function machine; • Write positions on the full coordinate grid (all four quadrants) as co-ordinates, plot co-ordinates, **find midpoints between two co-ordinates or on a line.** • Draw, label and choose appropriate scales for axes • Plot and interpret linear graphs, including those which represent situations that change over time e.g. distance time graphs, **calculate speed from them and make conclusions.** • **Introduce concept of gradient and intercept formally to calculate from a graph and identify within equations of the form y=mx+c**	• Plan a survey (hypothesis, collect data, sort data into tables. draw diagrams, analysis) - grouped data introduction • Diagrams: pie charts, using percentages and fractions to draw and interpret pie charts, drawing conclusions from them. • Diagrams: bar charts and line graphs for grouped data. • Averages: mean, median, range and mode • Calculate and interpret the mean as an average, calculate the mean from a table of ungrouped data. • Make simple comparisons between data sets. • **Draw and interpret stem and leaf diagram - finding median and quartiles.**	• Solve problems involving the calculation and conversion of unit of measure, using decimal notation up to 3dp • Use, read, write and convert between standard units, converting measurements of length, mass, volume and time using decimal notation up to 3dp • Convert between miles and kilometres (link to graphical representation) • Find Perimeter of rectangles, triangles, and other shapes given all lengths. • Find area of rectangles, triangles, parallelograms **trapezia and circles** and compound shapes involving these. • Identify similar shapes using lengths, **find missing lengths in similar shapes.** • Recognise that shapes with the same area can have different perimeters and vice versa • Recognise and practise using formulae for area and volume of shapes; find area of non-regular shapes • Calculate, estimate and compare volume of cubes and cuboids using standard units, **convert between units of area and volume.** • Introduce compound units such as speed, can link to distance time graphs.

Common misconceptions:	Forgetting to use BIDMAS with terms involving multiplication and indices	Confusing methods for calculating averages, misuse of protractor	Perimeter when meaning area and vice versa.
NC Codes	A1, A2, A3, A4, A7, A8, A9	S2, S3, S4, G15	G14, G15, G16, R13, R1, R16, R17, G9, A14
Key Words	Tier 2: Substitute, expression, function, formula, axes, scale, plot, interpret, linear, quadrants, horizontal, vertical, identify, gradient, intercept Tier 3: algebraic, polygons, midpoint	Tier 2: Primary Data, Secondary Data, Hypothesis, frequency, compare, interpret, bar chart. Tier 3: mean, median, mode, range, analysis, pie chart	Tier 2: Units, perimeter, area, compound, square, rectangle, triangle, measurement, mass, units, formula, similar, volume, regular, convert. Tier 3: circumference, radius, diameter, tangent, chord, sector, trapezium.
Homework	Hegarty maths tasks linked to current topic and ability of classes	Hegarty maths tasks linked to current topic and ability of classes	Hegarty maths tasks linked to current topic and ability of classes
Career links	Computer Games Designer https://www.unifrog.org/student/careers/school-subjects/computer-games-developer	Financial Adviser https://www.unifrog.org/student/careers/school-subjects/financial-adviser	Boat Builder https://www.unifrog.org/student/careers/school-subjects/boat-builder
Employability skills	Aiming high Numeracy Creativity Literacy Independence Listening Communication Presenting Teamwork Problem solving Staying positive Leadership	Aiming high Numeracy Creativity Independence Literacy Listening Communication Presenting Teamwork Problem solving Staying positive Leadership	Aiming high Numeracy Creativity Literacy Independence Listening Communication Presenting Teamwork Problem solving Staying positive Leadership
Assessment	A2 in class formal assessment, followed by common misconceptions and corrections lesson.	D1 in class formal assessment, followed by common misconceptions and corrections lesson.	S1 in class formal assessment, followed by common misconceptions and corrections lesson.
	Half Term Assessment: Units N4, N5, A3, A4, A2, D1, S1		

Y8 HT3 6.5 weeks

	S4 (Block 2) 2 weeks	N3 (Block 2) 2 weeks with HTT	A1 (Block 3) 1 week
	• Reflect shapes in given mirror lines (no axes) • Draw and translate simple shapes on the coordinate plane and reflect them in the axes, **reflect in x=a, y=b lines** • Identify reflection symmetry • Rotate shapes around a point (no axes), **(with axes using a co-ordinate)** • Identify order of rotational symmetry • Make tessellating patterns, link to interior **and exterior** angles • Introduce scale factors / enlargement, link to similarity, **fractional scale factors.**	· Recap factors, multiples and prime numbers · Find common factors and multiples, leading to HCF and LCM · Squares and square roots (whole numbers), **estimate square roots for non square numbers**, basic calculations with indices, **including fractional indices of the type 1/n** · Divisibility tests up to 10 · Order of operations (BIDMAS) · Introduce prime factorisation, **using prime factorisation to find HCF and LCM.** • **Further standard form**	• Find the position-to-term (nth term) rule for linear sequences and pictoral sequences, **use the nth term rule for these to test whether a number is in a sequence.** • Substitute into linear **and quadratic** nth term rules to generate terms in sequences • Recognise and investigate more complex number patterns and puzzles, such as Fibonacci, square and cube numbers, **understand the characteristics of quadratic sequences, find the nth term for these.**
Common misconceptions:	Drawing vertical lines for y=b and horizontal lines for x=a due to axis directions.	Writing answers to square roots with a squared.	Misremembering the method for finding nth term
NC Codes	R2, G15, G7, G8, G11, G24, G25	N3, N4, N6, N7, N9	A23, A24
Key Words	Tier 2: Reflect, describe, draw, translate, construct, scale. Tier 3: Rotate, centre of enlargement/rotation, vector, scale factor.	Tier 2: Factor, common, multiple. Tier 3: highest common factor, lowest common multiple, prime number, square number, square root, indices, factorisation,	Tier 2: Term, sequence, Tier 3: arithmetic, linear, substitute, Fibonacci, square number, triangle number, Fibonacci
Homework	Hegarty maths tasks linked to current topic and ability of classes	Hegarty maths tasks linked to current topic and ability of classes	Hegarty maths tasks linked to current topic and ability of classes
Career links	App Developer https://www.unifrog.org/student/careers/keywords/app-developer	Naval Officer https://www.unifrog.org/student/careers/mathematics/royal-navy-officer	Archivist https://www.unifrog.org/student/careers/keywords/archivist
Employability skills	Aiming high Numeracy Creativity Literacy Independence Listening Communication Presenting Teamwork Problem solving Staying positive Leadership	Aiming high Numeracy Creativity Literacy Independence Listening Communication Presenting Teamwork Problem solving Staying positive Leadership	Aiming high Numeracy Creativity Literacy Independence Listening Communication Presenting Teamwork Problem solving Staying positive Leadership
Assessment	S4 in class formal assessment, followed by common misconceptions and corrections lesson.	N3 in class formal assessment, followed by common misconceptions and corrections lesson.	A1 in class formal assessment, followed by common misconceptions and corrections lesson.
	Half Term Assessment: Units N4, N5, A3, A4, A2, D1, S1, S4, N3, A1		

HT4 5 weeks

	S2 (Block 2) 2 weeks	D2 (Block 2) 2 weeks with HTT
	• Construct and draw 2-D shapes using given dimensions and angles – notation • Recognise angles where they meet at a point, are on a straight line or are vertically opposite and find missing angles (express these relationships algebraically) • Find the unknown angles in any triangle, quadrilateral and regular polygon, notation for angles • Solve multi step angle calculations • **Introduce bearings**	• Record, describe and analyse the frequency of outcomes of simple probability experiments involving randomness, fairness, equally likely and unequally likely outcomes using appropriate language and the 0-1 probability scale *confidently using fractions, decimals and percentages interchangeably* . • Calculate the probability of a single event • Recognise that sum of probabilities =1 and use this to find the probability of an event not happening • List all outcomes of two events using a two way table and sample space diagrams, **solve problems with frequency trees and represent information in a venn diagram.** **Experimental probability:** • Find the relative frequency from experimental data, **use this to calculate the expected number of successes.** • Compare experimental and theoretical probability
Common misconceptions:	Misuse of protactor, assuming all angles along a straight line add to 180	Continuing to express probabilities as words rather than numerically.
NC Codes	G4, , G7, G2, G3, G1, G14, G15	P1, P2, P3, P4, P6
Key Words	Tier 2: Estimate, measure, calculate, construct, regular. Tier 3: Angle, acute, obtuse, reflex, right angle, protractor, isosceles triangle, equilateral triangle, quadrilateral, polygon.	Tier 2: Likelihood, certain, impossible, unlikely, likely, experiment, fair, event, theoretical, bias. Tier 3: Probability, outcome, expected success, relative frequency.
Homework	Hegarty maths tasks linked to current topic and ability of classes	Hegarty maths tasks linked to current topic and ability of classes
Career links	Welder https://www.unifrog.org/student/careers/school-subjects/welder	Credit Risk Analyst https://www.unifrog.org/student/careers/school-subjects/credit-analyst
Employability skills	Aiming high Numeracy Creativity Literacy Independence Listening Communication Presenting Teamwork Problem solving Staying positive Leadership	Aiming high Numeracy Creativity Literacy Independence Listening Communication Presenting Teamwork Problem solving Staying positive Leadership
Assessment	S2 in class formal assessment, followed by common misconceptions and corrections lesson.	D2 in class formal assessment, followed by common misconceptions and corrections lesson.
	Half Term Assessment: Units N4, N5, A3, A4, A2, D1, S1, S4, N3, A1, S2, D2	

HT5 6 weeks

	S3 (Block 2) 1-2 weeks	N1/N2 (Block 3) 3 weeks with HTT	
	• Compare and classify geometric shapes based on their properties and sizes – use these to derive unknown measurements • Recognise, describe and build simple 3-D shapes, including identifying nets, plans and elevations. • Use isometric paper to draw 3D solids • Illustrate and name parts of circles, including radius, diameter and circumference (diameter = 2 x radius), introduce formulae for circle area and circumference. • **Derive and use standard ruler and compass constructions for triangles, perpendicular bisectors and angle bisectors.** • **Identify similar and congruent 2D shapes.**	**Negative Numbers** · Compare and order integers both positive and negative, decimals · Use a number line to understand negative numbers in context · Add and subtract negative numbers, **applications to BIDMAS, substitution and graphs etc** **Decimal Arithmetic Recap** · Add subtract decimals including multi step problems in context, **multiply and divide with decimals of all types.** **Negative Numbers 2** · Multiply and divide negative numbers	**Multiplication and division recap** · Multiply and divide numbers by 10, 100 and 1000 (including decimals up to 3dps), **and 0.1 etc** · Multiply whole numbers and decimals using long multiplication, **practise use of a calculator with correct use of advanced functions** · Use written division methods, interpreting remainders as fractions and giving answers as decimals · Solve problems involving all four operations; including ones which require rounding to a specified degree of accuracy · Use estimation to check answers and choose an appropriate degree of accuracy, **consider upper and lower bounds including calculations** **Time for key skills consolidation, revision, catchup and extend**
Common misconceptions:	Confusing diameter and radius, multiplying rather than dividing when converting units and vice versa.	Confusion with adding and subtracting negative numbers, assuming an answer rather than applying a consistent method.	
NC Codes	G2, G5, G6, G1, G14, G15, G4, G9	N1, N2, N3, N14, N15, N16	
Key Words	Tier 2: construct, similar, measure, parallel, property, similar. Tier 3: Perpendicular, plan, elevation, isometric, radius, diameter, circumfrence, area, bisect, compass, congruent.	Tier 2: Value, positive, negative, addition, subtraction, decimal, sum, compare, integer, estimate, rounding, significant, interpret, inequality, multiply, divide, remainder, power, operation, appropriate, fraction, specified	
Homework	Hegarty maths tasks linked to current topic and ability of classes	Hegarty maths tasks linked to current topic and ability of classes	
Career links	Accountant https://www.unifrog.org/student/careers/keywords/management-	Customer Service Advisor https://www.unifrog.org/student/careers/school-subjects/financial-services-	
Employability skills	Aiming high Numeracy Creativity Literacy Independence Listening Communication Presenting Teamwork Problem solving Staying positive Leadership	Aiming high Numeracy Creativity Literacy Independence Listening Communication Presenting Teamwork Problem solving Staying positive Leadership	
Assessment	S3 in class formal assessment, followed by common misconceptions and corrections lesson.	N1 and N2 in class formal assessment, followed by common misconceptions and corrections lesson.	
	Half Term Assessment: Units N4, N5, A3, A4, A2, D1, S1, S4, N3, A1, S2, D2, S3, N1, N2		

HT6 6.5 weeks

	S1 (Block 3) 2 -3 weeks with HTT	
	• Solve problems involving mixed units (requiring conversion to same units) • Solve real life problems requiring conversion between miles and kilometres including on graphs to link with conversion graphs and gradients. • Use formulae to find area of triangle and parallelograms - area of trapezia introduced by splitting into known 2D shapes and then formula for trapezium. • Find area of compound shapes made from combinations of rectangles, triangles and parallelograms, **trapezia and circles.** • Find the surface area of 3D shapes • Calculate volume of a prism - **cylinders, triangular prisms, more complex prisms.** • Solve simple problems involving compound units • **Introduction to Pythagoras' Theorem**	**Time for key skills consolidation, revision, catchup and extend**
Common misconceptions:	Not calculating/using the lengths of shorter sides when calculating with compound shapes.	
NC Codes	N13, G1, G4, G9, G14, G16, G17, G20, N8, R5, R1	
Key Words	Tier 2: Units, area, perimeter, conversion, gradient, triangle, parallelogram, formula, formulae. Tier 3: Volume, compound units, prism, quadrilateral, cylinder, triangular prism, hypotenuse, radius, circumference.	
Homework	Hegarty maths tasks linked to current topic and ability of classes	
Career links	Tree Surgeon https://www.unifrog.org/student/careers/keywords/tree-surgeon	
Employability skills	Aiming high Numeracy Creativity Literacy Independence Listening Communication Presenting Teamwork Problem solving Staying positive Leadership	
Assessment	S1 in class formal assessment, followed by common misconceptions and corrections lesson.	
	Half Term Assessment: Units N4, N5, A3, A4, A2, D1, S1, S4, N3, A1, S2, D2, S3, N1, N2	

Y9

Statements in italics are *foundation plus* , statements in bold and or underlined are **higher/higher plus**

HT1 6.5 weeks

HT2 7 Weeks

	N4 N5 (Block 3) 3 weeks	D1 (Block 3) 2 weeks	A2 (Block 3) 2 weeks with HTT	A3 A4 (Block 3) 3 weeks	S4 (Block 3) 2 weeks with HTT	S2 (Block 3) 2 weeks
	FDP · Recall and use equivalencies between fractions, decimals and percentages including in different contexts · Express one quantity as a fraction of another · Express one quantity as a percentage of another · Add and subtract multiply and divide with fractions in context	• Choose a sample: random and systematic, understand limitations of sampling • Draw and interpret frequency diagrams, pie charts, scatter graphs. Estimating from scatter graphs, **understand the limitations of doing so**. • Draw and interpret stem and leaf diagram - finding median	• Interpret and substitute numbers into expressions and formulas, including simple scientific formulae e.g. V = IR, and link to BIDMAS for terms involving powers and coefficients e.g. $3x^2$ • Plot and interpret linear graphs and simple quadratic graphs, **more complex quadratic functions, alongside cubic functions *and reciprocal functions, extension to trigonometric graphs and circle centre origin.*** • Finding gradients by identifying from an equation in the form y=mx+c and graphically by drawing a triangle. Identify parallel lines from equations, **identify gradient and intercept by rearranging equations**	• Simplfying expressions review, with all operations including powers, including familiarity with coefficients as fractions • Construct simple formulas to describe situations such as the perimeter and area of simple shapes • Expand single brackets (including use of negative numbers), **extension to expanding two brackets**	• Use a coordinate grid to Translate a shape using a vector, **introduce vector arithmetic** Reflect a shape in a given mirror line on axes, link to x=a, y=b lines	• Construct triangles given 2 sides/1 angle or 2 angles/1 side; introduce further constructions e.g. bisectors and solve simple related loci problems using constructions • Introduce angles in parallel lines, corresponding and alternate angle problems. • Solve 2-step angle calculation problems (use equations to solve problems with justifications) including isosceles triangles and other shapes with known properties. **Introduce the angle sum within any polygon and deduce properties of regular polygons including exterior angles.**
	Ratio recap · Express something as a ratio and simplify · Share into a ratio · Find a missing quantity in ratio problems using equivalence · Recognise proportionality in contexts (including inverse proportion) e.g. conversion graphs and solve problems involving similar shapes, recipes etc	• Solve problems involving calculations of the mean; calculate the mean of 2 data sets and compare. • Compare two sets of data using graphs and averages, knowing when it is appropriate to do so.	• Describe horizontal and vertical lines using x=a and y=a, link to reflections. • Draw and interpret distance time graphs and other real life graphs linking to gradients and intercepts.	• Factorise into a single bracket, **factorise quadratics and solving (of the form $x^2 + bx + c$) using factorisation and the quadratic formula - extension to difference of two squares** • Solve two step linear equations involving all four operations - focus on formal methods rather than tactical guessing	Rotate a shape around a given point on axes Enlarge a shape using only a scale factor, **including fractional and negative scale factors.**	• Introduce bearings, **solve problems with bearings.** • **Introduce circle theorems, isosceles triangles from two radii, radius meeting a tangent at a right angle, angle formed from a diameter is a right angle**
	Fractions and percentages of amounts · Recap percentages and fractions of amounts · Percentage increase and decrease, percentage change, simple interest · Reverse percentages introduction **Higher:** Compound interest and depreciation with multipliers, solving multi step problems. Reverse percentages Link between ratios and fractions Proportion in context e.g. best buy problems	• **Cumulative frequency diagrams, box plots and quartiles/interquartile range.**	• *Deduce whether a point lies on a line, estimating from linear and quadratic graphs.* Finding approximate solutions to simultaneous equations graphically	• Solve two step equations with negative and fractional/decimal solutions • Rearranging equations - introduce equations with unknowns on both sides, **equations involving algebraic fractions.** • Solve problems in context using equations, find pairs of numbers that satisfy an equation with two unknowns, e.g. simple context based simultaneous equations **and formal algebraic method** • **Rearranging equations / Changing the subject of equations - not those which require factorisation** • Inequality review: integers satisfied by inequalities, notation on a number line	• Construct scale drawings	
Common misconceptions:	Mistakes when using multipliers, e.g 1.4 for 4% increase	Estimating from a scatter graph by	Forgetting to use BIDMAS with terms such as $3x^2$, assuming x=a lines are horiztonal because the x axis is, incorrect labeling of axes such as inconsistent scales and numbers within boxes.	Expanding brackets without multplying the second term	Interpreting/writing vectors the wror	Writing bearings without 3 digits, or forgetting to calculate the clockwise angle.
NC Codes	N1, N2, N10, N11, N12, N13, R3, R4, R5, R9, R16	S2, S3, S4, S6	A1, A2, A3, A4, A7, A8, A9, A12, A14, A15	A1, A3, A6, A4, A5, A17, A18, A19, A21, A22	R2, G15, G7, G8, G11, G24, G25	G4, G7, G2, G3, G1, G14, G15, G10, G16
Key Words	Tier 2: Percentage, decimal, ratio, fraction, equivalent, percentage, percentage increase, percentage decrease, percentage change, proportion, direct and inverse proportion, convert. Tier 3: Numerator, denominator, simple interest, compound interest, multiplier, mixed number, improper fraction, reverse percentage, depreciation.	Tier 2: Hypothesis, frequency, compare, interpret, bar chart, correlation. Tier 3: mean, cumulative, box plot, quartile, interquartile range, median, mode, range, analysis, pie chart	Tier 2: Substitute, expression, function, formula, axes, scale, plot, interpret, linear, quadrants, horizontal, vertical, identify, gradient, intercept Tier 3: algebraic, polygons, midpoint, trigonometric, cubic, quadratic, reciprocal	Tier 2: terms, expressions, equations, , variable, function, inverse, identities, inequality , rearrange, satisfy, expand, rearrange. Tier 3: like terms, simplify, expand, identities, inequality, change the subject, factorise	Tier 2: Reflect, describe, draw, translate, construct, scale. Tier 3: Rotate, centre of enlargement/rotation, vector, scale factor.	Tier 2: Estimate, measure, calculate, construct, regular, parallel, alternate, corresponding, sum, deduce, interior, exterior. Tier 3: Angle, acute, obtuse, reflex, right angle, protractor, isosceles triangle, equilateral triangle, quadrilateral, polygon, bisect, loci, perpendicular
Homework	Hegarty maths tasks linked to current topic and ability of classes	Hegarty maths tasks linked to current topic and ability of classes	Hegarty maths tasks linked to current topic and ability of classes	Hegarty maths tasks linked to current topic and ability of classes	Hegarty maths tasks linked to current topic and ability of classes	Hegarty maths tasks linked to current topic and ability of classes
Career links	Primary School Teacher https://www.unifrog.org/student/careers/school-subjects/primary-	Product Designer https://www.unifrog.org/student/careers/school-subjects/electrician	Dental Technician https://www.unifrog.org/student/careers/school-subjects/dental-technician	App developer https://www.unifrog.org/student/careers/keywords/app-developer	CAD Technician https://www.unifrog.org/student/careers/school-subjects/cad-	Road Worker https://www.unifrog.org/student/careers/school-subjects/road-worker
Employability skills	Aiming high Numeracy Creativity Literacy Independence Listening Communication Presenting Teamwork Problem solving Staying positive Leadership	Aiming high Numeracy Creativity Independence Literacy Listening Communication Presenting Teamwork Problem solving Staying positive Leadership	Aiming high Numeracy Creativity Literacy Independence Listening Communication Presenting Teamwork Problem solving Staying positive Leadership	Aiming high Numeracy Creativity Literacy Independence Listening Communication Presenting Teamwork Problem solving Staying positive Leadership	Aiming high Numeracy Creativity Literacy Independence Listening Communication Presenting Teamwork Problem solving Staying positive Leadership	Aiming high Numeracy Creativity Literacy Independence Listening Communication Presenting Teamwork Problem solving Staying positive Leadership
Assessment	N4 and N5 in class formal assessment, followed by common misconceptions and corrections lesson.	D1 in class formal assessment, followed by common misconceptions and corrections lesson.	A2 in class formal assessment, followed by common misconceptions and corrections lesson.	A3 and A4 in class formal assessment, followed by common misconceptions and corrections lesson.	S4 in class formal assessment, followed by common misconceptions and corrections lesson.	S2 in class formal assessment, followed by common misconceptions and corrections lesson.
	Half Term Assessment: Units N4, N5, D2, A2			**Half Term Assessment: Units N4, N5, D2, A2, A3, A4, S4, S2**		

Y9 HT3 6.5 weeks

D2 (Block 3) 2 weeks	N3(Block 3) 2 weeks with HTT	
• Systematic listing to evaluate the outcomes from an event. List all the outcomes from a single event which are equally likely and mutually exclusive. **Product rule for counting.** • Investigate probability of combined events, using two way tables, sample spaces and venn diagrams. **Introduce tree diagrams for independent events (i.e. replacement)** • Find the probability of combined events using sample space diagram and frequency trees. Introduction to venn diagram probability **and set notation.** • Calculate expected number of outcomes of an event **Experimental probability:** • Find the relative frequency from experimental data • Compare experimental and theoretical probability • Calculate the likely number of times an event is likely to occur from its relative frequency/probability	• Know and calculate cubes and cube roots, calculations with indices, **including fractional indices of the type 1/n and m/n** • Use Divisibility tests up to 20 to check for primes and find factors of a number • Find HCF and LCM of pairs of numbers up to 40 • Introduce standard form, **calculations with standard form** · Order of operations (BIDMAS), applications to calculating with negative numbers • **Introduce surds, multiplying and dividing surds.** · Prime factorisation	**Time for catchup, consolidation, review from Term 1, or to Start S3**

Common misconceptions:	Confusion between union and intersection set notation.	Misuse of a calculator with negative values, forgetting to write x10 with standard form - just writing a number to the power of something.
NC Codes	P1, P2, P3, P4, P6, N5, P8	N3, N4, N6, N7, N9
Key Words	Tier 2: Likelihood, certain, impossible, unlikely, likely, experiment, fair, event, theoretical, bias. Tier 3: Probability, outcome, expected success, relative frequency, tree diagram, sample space, venn diagram.	Tier 2: Factor, common, multiple. Tier 3: highest common factor, lowest common multiple, prime number, square number, square root, indices, factorisation, standard form
Homework	Hegarty maths tasks linked to current topic and ability of classes	Hegarty maths tasks linked to current topic and ability of classes
Career links	Epidemiologist https://www.unifrog.org/student/careers/school-subjects/epidemiologist	Astronomer https://www.unifrog.org/student/careers/school-subjects.k1/astronomer
Employability skills	Aiming high, Numeracy, Creativity, Independence, Literacy, Listening, Communication, Presenting, Teamwork, Problem solving, Staying positive, Leadership	Aiming high, Numeracy, Creativity, Literacy, Independence, Listening, Communication, Presenting, Teamwork, Problem solving, Staying positive, Leadership
Assessment	D2 in class formal assessment, followed by common misconceptions and corrections lesson.	N3 in class formal assessment, followed by common misconceptions and corrections lesson.
	Half Term Assessment: Units N4, N5, D2, A2, A3, A4, S4, S2, D2, N3	

HT4 5 weeks

S3 (Block 3) 2 weeks + HTT	N1 N2 (Block 4) 3 weeks
• Classify properties of 2D and 3D shapes (parallel and perpendicular lines, faces, edges and vertices) including using mathematical notation; • Identify similar and congruent 2D shapes, **construct these accurately**. • Draw and label plane shapes on coordinate plane, deducing missing coordinates using the properties of shapes. These could be expressed algebraically. • Draw plans and elevations of 3D shapes • Solve problems involving accurate construction of plans and elevations of 3D solids • **Derive and use standard ruler and compass constructions in applications to loci**	**Order, Negative Numbers:** · Compare and order poisitve and negative integers, decimals in context of measures; order negative numbers using inequality notation · Review methods for addition, subtraction, multiplication and division of negative numbers Rounding and estimation · Round numbers to any given degree of accuracy including dps and sfs, introduce recurring decimals to fractions. · use approximation through rounding to estimate answers and calculate possible *resulting errors expressed using inequality notation a≤x<b* , **upper and lower bounds including calculations** Multiplication and division recap • Multiply and divide by powers of 10 including 0.1 and 0.01 • Solve multiplication and division problems in context - review written methods, use of a calculator linking to rounding to significant figures and dps. · Solve problems involving mixed calculations in context, involving decimals and conversion of units

Common misconceptions:	Inaccurate use of a ruler and/or compass.	Estimating by rounding too conservatively.
NC Codes	G2, G5, G6, G1, G14, G15, G4, G12	N1, N2, N3, N14, N15, N16
Key Words	Tier 2: construct, similar, measure, parallel, property, similar, face, edge, plane. Tier 3: Perpendicular, plan, elevation, isometric, radius, diameter, circumfrence, area, bisect, compass, congruent, vertex, loci	Tier 2: Value, positive, negative, addition, subtraction, decimal, sum, compare, integer, estimate, rounding, significant, interpret, inequality, multiply, divide, remainder, power, operation, appropriate, fraction. Tier 3: Error Interval
Homework	Hegarty maths tasks linked to current topic and ability of classes	Hegarty maths tasks linked to current topic and ability of classes
Career links	Construction manager. https://www.unifrog.org/student/careers/keywords/management-accountant	Chemical Engineer https://www.unifrog.org/student/careers/school-subjects/chemical-engineer
Employability skills	Aiming high, Numeracy, Creativity, Literacy, Independence, Listening, Communication, Presenting, Teamwork, Problem solving, Staying positive, Leadership	Aiming high, Numeracy, Creativity, Literacy, Independence, Listening, Communication, Presenting, Teamwork, Problem solving, Staying positive, Leadership
Assessment	S3 in class formal assessment, followed by common misconceptions and corrections lesson.	N1 and N2 in class formal assessment, followed by common misconceptions and corrections lesson.
	Half Term Assessment: Units N4, N5, D2, A2, A3, A4, S4, S2, D2, N3, S3, N1, N2	

HT5 6 weeks

A1 (Block 4) 1 week	S1 (Block 4) 3 weeks + HTT	
• Find and use the position-to-term (nth term) rule for linear sequences and pictoral sequences, build upon number knowledge with sequences involving negatives, fractions, decimals • Investigate more complex number patterns and puzzles such as Fibonacci, geometric sequences **and quadratic sequences, finding the nth term for quadratic sequences.**	• Solve problems involving mixed units, introduce units of area (requiring conversion to same units) • Solve problems involving compound areas (made from rectangles, triangles, parallelograms and trapezia) • Finding the area and circumference of a circle • Solve simple problems involving area and circumference of compound shapes (semi circles etc) • Solve problems involving volume and surface area of a prism including cylinders, leading to very simple compound 3D shapes. **Extension to sphere and cone.** • Introduce Pythagoras' Theorem, **extend pythagoras and introduce trigonometry.**	**Time for catch up or consolidation due to standardised tests**

Common misconceptions:	Continuing a sequence rather than using the rule to establish whether a term is in it.	Using radius rather than diameter or vice versa in circle calculations
NC Codes	A23, A24	N13, G1, G9, G14, G16, G17, G20, N8
Key Words	Tier 2: Term, sequence, Tier 3: arithmetic, linear, substitute, Fibonacci, square number, triangle number, quadratic, Fibonacci	Tier 2: Units, conversion, gradient, triangle, parallelogram, formula, formulae. Tier 3: Volume, area, perimeter, quadrilateral, compound units, prism, cylinder, triangular prism, radius, diameter, circumference, sector, sphere, cone, hypotenuse
Homework	Hegarty maths tasks linked to current topic and ability of classes	Hegarty maths tasks linked to current topic and ability of classes
Career links	Computer programmer https://www.unifrog.org/student/careers/keywords/computer-programmer	Structural engineer https://www.unifrog.org/student/careers/school-subjects.k1/structural-engineer
Employability skills	Aiming high, Numeracy, Creativity, Literacy, Independence, Listening, Communication, Presenting, Teamwork, Problem solving, Staying positive, Leadership	Aiming high, Numeracy, Creativity, Literacy, Independence, Listening, Communication, Presenting, Teamwork, Problem solving, Staying positive, Leadership
Assessment	A1 in class formal assessment, followed by common misconceptions and corrections lesson.	S1 in class formal assessment, followed by common misconceptions and corrections lesson.
	Half Term Assessment: Units N4, N5, D2, A2, A3, A4, S4, S2, D2, N3, S3, N1, N2, A1, S1	

HT6 6.5 weeks

A2 (Block 4) 3 weeks+ HTT	D1 (Block 4) 2 weeks
• Interpret and substitute numbers into expressions and formulas, including simple scientific formulae e.g. V = IR, and link to BIDMAS for terms involving powers and coefficients e.g. $3x^2$ • Plot and interpret linear graphs and simple quadratic graphs, **more complex quadratic functions, alongside cubic functions *and reciprocal functions, extension to trigonometric graphs and circle centre origin.*** • Finding gradients by identifying from an equation in the form y=mx+c and graphically by drawing a triangle. Identify parallel lines from equations, **identify gradient and intercept by rearranging equations** • Describe horizontal and vertical lines using x=a and y=a, link to reflections. • Draw and interpret distance time graphs and other real life graphs linking to gradients and intercepts. • *Deduce whether a point lies on a line, estimating from linear and quadratic graphs.* Finding approximate solutions to simultaneous equations graphically	• Collect data and choose a suitable table and chart to represent it. Involving discrete, continuous and grouped data. Choosing appropriate measures of central tendency (mean, mode, median) and spread (range, consideration of outliers) • Calculate measures of location and spread: Mode, median, mean and range, use these to compare data sets. • Calculate mean, median, range and mode from a frequency table • Calculate mean, median, range and mode from a **grouped frequency** table, **reverse mean.** • Draw scatter graphs, lines of best fit and estimate from them. Describe any association (correlation) between two sets of data using scatter diagrams. • **Histograms - drawing and finding frequencies from them.**

Common misconceptions:	Forgetting to rearrange equations to identify intercept and gradient.	Assuming a histogram is representing the frequency on the y axis.
NC Codes	A1, A2, A3, A4, A7, A8, A9, A12, A14, A15	S2, S3, S4, S6
Key Words	Tier 2: Substitute, expression, function, formula, axes, scale, plot, interpret, linear, quadrants, horizontal, vertical, identify, gradient, intercept Tier 3: algebraic, polygons, midpoint, trigonometric, cubic, quadratic, reciprocal	Tier 2: Hypothesis, frequency, compare, interpret, bar chart, correlation, line of best fit, estimate. Tier 3: mean, histogram, median, mode, range, analysis, pie chart
Homework	Hegarty maths tasks linked to current topic and ability of classes	Hegarty maths tasks linked to current topic and ability of classes
Career links	Astronomer https://www.unifrog.org/student/careers/school-subjects.k1/astronomer	Credit risk analyst https://www.unifrog.org/student/careers/school-subjects/credit-analyst
Employability skills	Aiming high, Numeracy, Creativity, Literacy, Independence, Listening, Communication, Presenting, Teamwork, Problem solving, Staying positive, Leadership	Aiming high, Numeracy, Creativity, Literacy, Independence, Listening, Communication, Presenting, Teamwork, Problem solving, Staying positive, Leadership
Assessment	A2 in class formal assessment, followed by common misconceptions and corrections lesson.	D1 in class formal assessment, followed by common misconceptions and corrections lesson.
	Half Term Assessment: Units N4, N5, D2, A2, A3, A4, S4, S2, D2, N3, S3, N1, N2, A1, S1, D1	

Y10F Content in italics is *foundation plus*

HT1

6.5 weeks

	N4 N5 (Block 4) 3+ weeks	A3 A4 (Block 4) 3 weeks + HTT
	Percentages · Convert fract dec % without a calculator · Compare and order fractions, decimals and % · Write one quantity as a percentage of another · Use multipliers to calculate percentages of amounts and percentage increase/decrease · Solve percentage increase/decrease problems in context, including comparisons and constructing arguments. E.g. depreciation, appreciation, interest, tax etc **Ratio and proportion** · Share in a given ratio, 2 and 3 parts · Solve simple direct and inverse proportion problems e.g. best buys (use scaling and unitary method) · Solve mixed problems involving compound units such as speed and unit pricing **Fractions** · Understand and use the link between proportion, ratio and fractions · Solve calculations involving fractions and mixed numbers	• Simplfying expressions review, with all operations including powers, including division written as fractions • Construct simple formulas to describe situations such as the perimeter and area of simple shapes • Expand expressions involving one and two brackets. • Factorise into a single bracket, introduce factorising quadratics by identifying the link between a quadratic expression and it's factorised form before expansion. • Solve equations review, including those with decimal/fractions and negative solution, and with unknowns on both sides • Solve problems and constrct arguments involving the formation and solution of equations, e.g. using 2 step linear equations to solve problems in context such as perimeter and angles in a triangle • Find integers represented by an inequality, including compound inqualities such as -3<x<2, solving simple inequalities • Re-arrange two step equations
Common misconceptions:	Unnecessarily finding a common denominator when multiplying fractions, leading to arithmetic errors.	Missing terms when expanding two brackets, incorrect answers solving equations with decimal or fractional answers due to trial and error method rather than formal methods.
NC Codes	N1, N2, N3, N10, N11, N12, R5, R10, IT1, IT2	A1, A3, A4, A6, A7, N2, A21, IT2
Key Words	Tier 2: Percentage, decimal, ratio, fraction, equivalent, percentage, percentage increase, percentage decrease, percentage change, proportion, direct and inverse proportion, convert. Tier 3: Numerator, denominator, simple interest, compound interest, multiplier, mixed number, improper fraction, reverse percentage, depreciation.	Tier 2: terms, expressions, equations, , variable, function, inverse, identities, inequality , rearrange, satisfy, expand, rearrange, perimeter. Tier 3: like terms, simplify, expand, identities, inequality, change the subject, factorise, quadratic
Homework	Hegarty maths tasks linked to current topic and ability of classes	Hegarty maths tasks linked to current topic and ability of classes
Career links	Accountant https://www.unifrog.org/student/careers/keywords/management-accountant	App Developer https://www.unifrog.org/student/careers/keywords/app-developer
Employability skills	Aiming high Numeracy Creativity Literacy Independence Listening Communication Presenting Teamwork Problem solving Staying positive Leadership	Aiming high Numeracy Creativity Literacy Independence Listening Communication Presenting Teamwork Problem solving Staying positive Leadership
Assessment	N4 and N5 in class formal assessment, followed by common misconceptions and corrections lesson.	A3 and A4 in class formal assessment, followed by common misconceptions and corrections lesson.
	Half Term Assessment: Units N4, N5, A3, A4	

HT2

7 Weeks

	S4 (Block 4) 2 weeks	D2 (Block 4) 2 weeks + Mock Exams	N3 (Block 4) 1-2 weeks
	• Reflect a shape in a given equation of line • Enlarge a shape given a centre of enlargement and a scale factor • Describe rotations, reflections and translations • Construct scale drawings (link to enlargements) of real-life objects; solve problems in the context of the scale being used. • Vector arithmetic (adding and subtracting, multiplying by a scalar) and drawing vectors.	• Calculate probability of combined events using sample spaces, introduce tree diagrams (independent events). Apply systematic listing strategies. • Compare the theoretical with the experimental number of outcomes for a combined event • Use the sum of probability = 1 to find missing probabilities in tables, including questions which may involve algebra or ratio with more than one unknown value. • Use Venn diagrams to represent intersections and unions (set notation) • Calculate probability using Venn diagrams	· Use the method of Prime factor decomposition · Use prime factors for finding HCF and LCM · Use integer powers and associated roots, calculating square roots, cube roots mentally · Investigate rules for multiplication and division of numbers expressed as powers • Further standard form: calculations introduction
Common misconceptions:	Confusing x=a, y=b lines with eachother, forgetting to use a centre of enlargement. Stating more than one transformation for 'describe the single transformation which...' questions.	Approaching systematic listing problems without a logical method, resulting in missed combinations.	Leaving answers in incorrect standard form rather than adjusting.
NC Codes	R2, G15, G7, G8, G11, G24, G25	N5, N2, P3, P4, P5, P6, P7, P8	N3, N4, N6, N7, N9
Key Words	Tier 2: Reflect, describe, draw, translate. Tier 3: Centre of enlargement/rotation, vector, scale factor.	Tier 2: Likelihood, certain, impossible, unlikely, likely, experiment, fair, event, theoretical. Tier 3: Probability, outcome, expected success, relative frequency, tree diagram, sample space, venn diagram, set notation.	Tier 2: Factor, common, multiple. Tier 3: highest common factor, lowest common multiple, prime number, square number, square root, indices, factorisation, standard form
Homework	Hegarty maths tasks linked to current topic and ability of classes	Hegarty maths tasks linked to current topic and ability of classes	Hegarty maths tasks linked to current topic and ability of classes
Career links	Welder https://www.unifrog.org/student/careers/school-subjects/welder	Chemical engineer https://www.unifrog.org/student/careers/school-subjects/chemical-engineer	Bus or Coach Driver https://www.unifrog.org/student/careers/keywords/bus-or-coach-driver
Employability skills	Aiming high Numeracy Creativity Literacy Independence Listening Communication Presenting Teamwork Problem solving Staying positive Leadership	Aiming high Numeracy Creativity Literacy Independence Listening Communication Presenting Teamwork Problem solving Staying positive Leadership	Aiming high Numeracy Creativity Literacy Independence Listening Communication Presenting Teamwork Problem solving Staying positive Leadership
Assessment	S4 in class formal assessment, followed by common misconceptions and corrections lesson.	D2 in class formal assessment, followed by common misconceptions and corrections lesson.	N3 in class formal assessment, followed by common misconceptions and corrections lesson.
	Half Term Assessment: Units N4, N5, A3, A4, S4, D2, N3		

Y10 F
HT3
6.5 weeks

	A1 (Block 5) 1 week	S1 (Block 5) 3 weeks	S3 (Block 4) 1-2 weeks
	• Recognise and distinguish between arithmetic, geometric and other sequences • Find nth term for arithmetic sequences and solve related problems including pictoral sequences • Generate terms in a sequence using term to term and position to term rules in Fibonacci and quadratic sequences, and geometric progressions (r^n where n is an integer and r is a rational number)	• Change freely between related standard units; solve problems in context; • Review area and perimeter of polygons • Find the area and perimeter of compound shapes (including those made with circles and fractions of circles - familiarity with arc lengths, sectors as terms, *leaving answers in terms of pi*) • Solve problems involving volume and surface area of prisms, including cylinders, compare lengths, areas and volumes with ratio notation (link to similarity/enlargement) • Use formulae to find surface area and volume of spheres, pyramids and cones and in composite solids • Use Pythagoras' Theorem to solve problems involving right-angled triangles • Introduce Trigonometry and exact values for sin, cos and tan of 0, 30, 45, 60 and 90 degrees	• Derive and use standard ruler and compass constructions for: - a triangle given 3 sides - the perpendicular bisector of a given line - the angle bisector of a given angle • Solve problems with triangle constructions • Know and use the criteria for congruence of 2 triangles • Use appropriate language to discuss properties of 2D and 3D shapes.
Common misconceptions:	Continuing a sequence rather than forming and solving an equation to deduce whether a term is in a sequence.	Adding rather than subtracting when finding a shorter side using Pythagoras' Theorem. Confusing area and perimeter.	Erasing construction lines, using incorrect terminology when discussing the properties of a shape. E.g. parallel when meaning equal in length.
NC Codes	A23, A24, A25	R12, N13, G1, G9, G14, G16, G17, G18, G19, G20, G21, N8	G2, G5, G6, G1, G14, G15, G4, G12
Key Words	Tier 2: Term, sequence, Tier 3: arithmetic, linear, substitute, Fibonacci, square number, triangle number, quadratic, Fibonacci	Tier 2: Units, conversion, gradient, triangle, parallelogram, formula, formulae. Tier 3: Volume, compound units, surface area, prism, cylinder, triangular prism, circumference, sector, arc length, polygon, sphere, cone, hypotenuse, adjacent	Tier 2: construct, similar, parallel, equal. Tier 3: Quadrilateral, perpendicular, bisect, congruent, polygon, kite, trapezium.
Homework	Hegarty maths tasks linked to current topic and ability of classes	Hegarty maths tasks linked to current topic and ability of classes	Hegarty maths tasks linked to current topic and ability of classes
Career links	Microbiologist https://www.unifrog.org/student/careers/school-subjects.k1/microbiologist	Architect https://www.unifrog.org/student/careers/school-subjects.k1/architect	Choreographer https://www.unifrog.org/student/careers/school-subjects.k1/architect
Employability skills	Aiming high Numeracy Creativity Literacy Independence Listening Communication Presenting Teamwork Problem solving Staying positive Leadership	Aiming high Numeracy Creativity Literacy Independence Listening Communication Presenting Teamwork Problem solving Staying positive Leadership	Aiming high Numeracy Creativity Literacy Independence Listening Communication Presenting Teamwork Problem solving Staying positive Leadership
Assessment	A1 in class formal assessment, followed by common misconceptions and corrections lesson.	S1 in class formal assessment, followed by common misconceptions and corrections lesson.	S3 in class formal assessment, followed by common misconceptions and corrections lesson.
	Half Term Assessment: Units N4, N5, A3, A4, S4, D2, N3, A1, S1, S3		

Y10 F
HT4
5 weeks

	N1 N2 (Block 5) 2 weeks	A2 (Block 5) 3+ weeks with HTT
	· Solve arithmetic problems in context · Use the four operations applied to integers (positive and negative) and decimals · Round numbers and measures to an appropriate degree of accuracy (dps and sig figs) · *Identify upper and lower bounds after rounding* · Express error intervals due to rounding and truncating in the form a≤x<b · Use approximation through rounding to estimate answers and calculate resulting errors, expressing using inequality notation a≤x<b and applying and interpreting limits of accuracy. · Investigate and solve problems using a calculator; interpret and round the answer appropriately; use appropriate function keys • Solve multi-step long multiplication and division problems in context and interpret answer appropriately; use estimation to check	• Substitute numerical values into formulae and expressions, including scientific formulae (including negative numbers, fractions and use of calculator - brackets for negative values and indices, use of the table function) • Plot graphs of linear functions by choosing appropriate scales; estimate and read from these graphs. • Find gradient, intercept and mid-point of a line. Finding gradients and intercepts algebraically and graphically. • Reduce a given linear equation in two variables to the standard form y=mx +c to plot and identify gradients and intercepts. Identify parallel lines from equations. • Find the equation of a line given the gradient and one point; and through two given points. • Draw and interpret distance time graphs and calculate the speed, calculate acceleration from velocity time graphs. • Recognise, sketch and interpret graphs of quadratic functions, simple cubic functions, the reciprocal function • Properties of quadratic graphs -find and interpret roots, intercepts, turning points of quadratic functions graphically; deduce roots algebraically (link to solving quadratic equations to introduce) • Find approximate solutions to contextual problems from given graphs of a variety of functions including linear, quadratic, exponential and reciprocal graphs
Common misconceptions:	Confusing truncation and rounding, estimating by rounding too conservatively.	For more advanced linear graph equations, forgetting to rearrange to identify gradient and intercept. Misuse of calculator for negative numbers when calculating values for graphs involving powers.
NC Codes	N1, N2, N3, N14, N15, N16	A1, A2, A3, A3, A6, A7, A8, A9, A10, A11, A12, A14, A17, A18, IT2
Key Words	Tier 2: Value, positive, negative, addition, subtraction, decimal, sum, compare, integer, estimate, rounding, significant, interpret, inequality, multiply, divide, remainder, power, operation, appropriate, fraction Tier 3: Error Interval, truncate	Tier 2: Substitute, expression, function, formula, axes, scale, plot, interpret, linear, quadrants, horizontal, vertical, identify, gradient, intercept Tier 3: algebraic, polygons, midpoint, reciprocal, cubic, quadratic
Homework	Hegarty maths tasks linked to current topic and ability of classes	Hegarty maths tasks linked to current topic and ability of classes
Career links	Tax Inspector https://www.unifrog.org/student/careers/school-subjects/tax-inspector	Computer Programmer https://www.unifrog.org/student/careers/keywords/computer-programmer
Employability skills	Aiming high Numeracy Creativity Literacy Independence Listening Communication Presenting Teamwork Problem solving Staying positive Leadership	Aiming high Numeracy Creativity Literacy Independence Listening Communication Presenting Teamwork Problem solving Staying positive Leadership
Assessment	N1 and N2 in class formal assessment, followed by common misconceptions and corrections lesson.	A2 in class formal assessment, followed by common misconceptions and corrections lesson.
	Half Term Assessment: Units N4, N5, A3, A4, S4, D2, N3, A1, S1, S3, N1, N2, A2	

Y10 F
HT5
6 weeks

	A2 continued if needed	
	D1 (Block 5) 2 - 3 weeks	S2 (Block 4) 2 weeks
	• 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 • Describe correlation between two sets of data, draw scatter diagrams and read off appropriate values; begin to understand the limitations of reading off values (extrapolation) • Calculate mean, median class and modal class from a grouped frequency table, understand why the mean is an estimate. • Draw and critique frequency polygons and compare distributions using frequency polygons • Draw and use Stem and Leaf diagrams, draw conclusions from them by calculating median, range. • Compare data sets using averages and measures of spread. • Infer properties of populations or distributions from a sample, while knowing the limitations of sampling	• Calculate missing angles in parallel lines • Solve multi-step angles calculations which involve angles in isosceles and equilateral triangles; quadrilaterals; angles around a point/ on a line, extend to angles within any polygon. • Measure and draw bearings • Construct scale diagrams with bearings • Solve triangulation problems using bearings and scale drawings
Common misconceptions:	Confusion between averages, drawing a line of best fit for frequency polygons.	Misuse of a protractor, assuming all angles along a straight line sum to 180 rather than those forming a semi circle.
NC Codes	S1, S2, S4, S5, S6	G2, G3, G1, G14, G15, IT2
Key Words	Tier 2: Frequency, bar chart, pie chart, data, grouped data, correlation, estimate, compare, population, sample. Tier 3: extrapolate, mean, median mode, range, modal class, sampling	Tier 2: Estimate, measure, calculate, construct, scale, regular, parallel, alternate, corresponding, sum, deduce, interior, exterior. Tier 3: Angle, acute, obtuse, reflex, right angle, protractor, isosceles, equilateral triangle, quadrilateral, polygon, bisect, loci, perpendicular, bearing
Homework	Hegarty maths tasks linked to current topic and ability of classes	Hegarty maths tasks linked to current topic and ability of classes
Career links	Naval Officer https://www.unifrog.org/student/careers/mathematics/royal-navy-officer	Archivist https://www.unifrog.org/student/careers/keywords/archivist
Employability skills	Aiming high Numeracy Creativity Literacy Independence Listening Communication Presenting Teamwork Problem solving Staying positive Leadership	Aiming high Numeracy Creativity Literacy Independence Listening Communication Presenting Teamwork Problem solving Staying positive Leadership
Assessment	D1 in class formal assessment, followed by common misconceptions and corrections lesson.	S2 in class formal assessment, followed by common misconceptions and corrections lesson.
	Mock exams wc 21/11 and 28/11	

Y10 F
HT6
6.5 weeks

Work Experience wc 3/7	N4 N5 (Block 5) 3 weeks	A3/A4 (Block 5) 3 weeks + Mock Exams and work experience
	Percentages · Recap basic percentages and multipliers · Compare and order fractions, decimals and % · Calculate percentage change · Write one quantity as a percentage of another · Solve reverse percentage (original value) problems · Use multipliers to calculate percentages of amounts and percentage increase/decrease · Compound and simple interest, depreciation and repeated percentage change in context **Ratio, Proportion and rates of change** · Express direct and inverse proportion problems graphically and use graphs e.g. conversion graphs, compound units such as speed, unit pricing, density, pressure, rates of pay. *Interpret equations representing proportion and link them to graphs.* · Recap ratio sharing and simplifying, solving problems in context expressed using ratio **Fractions** · Recap fraction arithmetic and link between ratio and fractions	A1 use and interpret algebraic manipulation, including: ab, 3y, a^3, a/b, coefficients as fractions rather than decimals and brackets A3 understand and use the concepts and vocabulary of expressions, equations, formulae, identities, inequalities, terms and factors A6 know the difference between an equation and an identity; argue mathematically to show algebraic expressions are equivalent, and use algebra to support and construct arguments A4 simplify and manipulate algebraic expressions (including those involving surds) ● collecting like terms ● multiplying a single term over a bracket ● taking out common factors ● expanding products of two binomials (brackets) ● factorising quadratic expressions of the form $x^2 + bx + c$, including the difference of two squares; ● simplifying expressions involving sums, products and powers, including the laws of indices A5 rearrange formulae to change the subject A17 solve linear equations in one unknown algebraically (including those with the unknown on both sides of the equation) A18 solve quadratic equations algebraically by factorising A19 solve two simultaneous equations in two variables algebraically and graphically A21 translate simple situations or procedures into algebraic expressions or formulae; derive an equation (or two simultaneous equations), solve the equation(s) and interpret the solution A22 solve linear inequalities in one variable; represent the solution set on a number line
Common misconceptions:	Writing a ratio as a fraction with an incorrect denominator, confusing place value with multipliers.	Confusing index laws i.e. multiplying indices when you should add, confusing the method for factorising quadratics such as multiplying to make b and adding to make c.
NC Codes	R9, R10, R11, R12, R14, R16	A1, A3, A6, A4, A5, A17, A18, A19, A21, A22, IT2
Key Words	Tier 2: Percentage, decimal, ratio, fraction, equivalent, percentage, percentage increase, percentage decrease, percentage change, proportion, direct and inverse proportion, convert. Tier 3: Numerator, denominator, simple interest, compound interest, multiplier, mixed number, improper fraction, reverse percentage, depreciation.	Tier 2: terms, expressions, equations, , variable, function, inverse, identities, inequality , rearrange, satisfy, expand, rearrange, simultaneous., linear. Tier 3: like terms, simplify, expand, identities, inequality, change the subject, factorise
Homework	Hegarty maths tasks linked to current topic and ability of classes	Hegarty maths tasks linked to current topic and ability of classes
Career links	Epidemiologist https://www.unifrog.org/student/careers/school-subjects/epidemiologist	Astronomer https://www.unifrog.org/student/careers/school-subjects.k1/astronomer
Employability skills	Aiming high Numeracy Creativity Literacy Independence Listening Communication Presenting Teamwork Problem solving Staying positive Leadership	Aiming high Numeracy Creativity Literacy Independence Listening Communication Presenting Teamwork Problem solving Staying positive Leadership
Assessment	N4 and N5 in class formal assessment, followed by common misconceptions and corrections lesson.	A3/4 in class formal assessment, followed by common misconceptions and corrections lesson.
	Mock Examinations wc 19/6 and 26/6	

Y10H Content in bold is **higher plus**

HT1
6.5 weeks

	N4 N5 (Block 4) 3+ weeks	A3 A4 (Block 4) 3 weeks + HTT
	Percentages R9, N12 Recap percentages, calculating using mental and calculator methods. Percentage increase and decrease, one quantity as a percentage of another (and percentage change) Reverse percentages, simple and compound interest. Familiarity with multipliers and confidence using them to represent appreciation and depreciation/growth and decay. **Ratio and proportion, rates of change** R2, R4-R8 Recap ratio skills, including simplifying and the relationship between fractions and ratio. **Using ratio in context i.e. scales, combining ratios.** R10. R14, R15 Direct and Inverse Proportion in context and graphically, e.g. conversion graphs, leading to **basic equations involving them and matching these with graphs.** **Fractions** N10, N2, N12, R3 Recap calculations with fractions of all types, including converting between FDP, fractions of amounts and one quantity as a fraction of another. R16 Introduce Iterative Processes in context	A1, 3, 4,6 Algebraic manipulation review - simplifying and manipulating expressions including index laws, confidence with different forms of equivalent expressions and equations including recap of basic rearranging, familiarity with algebraic language such as equation and identity. Expansion of one, two or **three** brackets Factorising into two one or two brackets, **including factorisation of $ax^2 + bx + c$**, difference of two squares A17, 19 Solve equations review and further - linear equations of all forms, including those with algebraic fractions, solving simultaneous equations (both linear) A18 Solving quadratic equations by factorisation, using the quadratic formula. A22 solve linear inequalities, representing solution using on a numberline, using set notation or on a graph. **Solve multiple inequalities graphically.** A21 Solve problems in context using equations, by forming an equation or simultaneous equations, interpret the solution in context.
Common misconceptions:	Forgetting to include a constant of proportionality in proportionality equations.	Confusing index laws i.e. multiplying indices when you should add, confusing the method for factorising quadratics such as multiplying to make b and adding to make c.
NC Codes	R9, N12, R2, R3, R4, R5, R6, R7, R8, R10, R14, R15, N10, N2, N12, R3, R16	A1, A3, A4, A6, A17, A19, A18, A22, A21, IT2
Key Words	Tier 2: Percentage, decimal, ratio, fraction, equivalent, percentage, percentage increase, percentage decrease, percentage change, proportion, direct and inverse proportion, convert. Tier 3: Numerator, denominator, simple interest, compound interest, multiplier, mixed number, improper fraction, reverse percentage, depreciation.	Tier 2: terms, expressions, equations, , variable, function, inverse, identities, inequality , rearrange, satisfy, expand, rearrange, simultaneous., linear. Tier 3: like terms, simplify, expand, identities, inequality, change the subject, factorise
Homework	Hegarty maths tasks linked to current topic and ability of classes	Hegarty maths tasks linked to current topic and ability of classes
Career links	Accountant https://www.unifrog.org/student/careers/keywords/management-accountant	App Developer https://www.unifrog.org/student/careers/keywords/app-developer
Employability skills	Aiming high Numeracy Creativity Literacy Independence Listening Communication Presenting Teamwork Problem solving Staying positive Leadership	Aiming high Numeracy Creativity Literacy Independence Listening Communication Presenting Teamwork Problem solving Staying positive Leadership
Assessment	N4 and N5 in class formal assessment, followed by common misconceptions and corrections lesson.	A3/4 in class formal assessment, followed by common misconceptions and corrections lesson.
	Half Term Assessment: Units N4, N5, A3, A4	

HT2

7 Weeks

	S4 (Block 4) 2 weeks	D2 (Block 4) 2 weeks + Mock Exams	N3 (Block 4) 1-2 weeks
	Identify, describe and perform transformations of shapes on a set of axes. Rotation, reflection, translation, enlargement (including negative and fractional scale factors) including combinations of transformations. G5, G6 Recap similarity and congruence here, identifying congruent triangles using congruence crieteria (SSS, SAS, ASA, RHS), finding missing lengths in similar shapes, **introduce basic proof using congruence and similarity.** G24, 25 Further vectors, recap vector arithmetic and link between column and diagrammaticrepresentation, basic proof using vectors. A13 Introduce graph transformations, translations and reflections only, introduce function notation.	P4 Apply the concept of the probabilities of an exhaustive set of outcomes (and an exhaustive set of mutually exclusive outcomes) sum to one, also in algebraic contexts P5, P7 Understanding and using theoretical and experimental probabilities P7, P8 represent outcomes and calculate probabilities for single events and combined events in sample spaces, tree diagrams (independent and dependent events) N5 Product rule for counting in context and understanding the applications of this. P6 Venn diagrams for qualitative and quantitative data, including set notation and calculating probabilities from them. P9 Calculate conditional probabilities from two way tables/sample spaces, tree diagrams and venn diagrams.	N6 Estimating powers and roots of any positive number, including decimals such as √1.44 in multiplier questions. N7 Recap fractional indices, including fractional indices of the type 1/n and m/n, Introduce negative integer indices. N8 Calculate exactly with surds, simplifying surds, expanding brackets with surds and rationalising denominators of the form √n, **extension to rationalising any denominator.** N1/N9 Interpret, order and calculate with numbers in standard form. Adjust answers to correct standard form. N4 Recap prime factorisation and order of operations (BIDMAS) including familiarity with the term reciprocal. N4 Find HCF and LCM of any numbers, including for groups of more than 2 numbers, using Venn diagrams **and for numbers given in index form.**
Common misconceptions:	Stating more than one transformation for 'describe the single transformation which...' questions.	Confusing dependent/independent events when using tree diagrams. Not identifying conditional probability due to the subtlety of wording in a question.	Assuming a negative index results in a negative value, confusing negative and fractional indices.
NC Codes	G7, G8, G9, G11, G5, G6, G24, G25, A13	P4, P5, P6, P7, P8, P9, N5, IT2	N4, N6, N7, N8, N9, N1
Key Words	Tier 2: Transform, combination, proof, vector. Tier 3: gometric, graph transformation, invariance, scale factor	Tier 2: Likelihood, certain, impossible, unlikely, likely, experiment, fair, event, theoretical. Tier 3: Probability, outcome, expected success, relative frequency, tree diagram, sample space, venn diagram, set notation.	Tier 2: Factor, common, multiple. Tier 3: highest common factor, lowest common multiple, prime number, square number, square root, indices, factorisation, standard form. Tier 3: Reciprocal
Homework	Hegarty maths tasks linked to current topic and ability of classes	Hegarty maths tasks linked to current topic and ability of classes	Hegarty maths tasks linked to current topic and ability of classes
Career links	Welder https://www.unifrog.org/student/careers/school-subjects/welder	Chemical engineer https://www.unifrog.org/student/careers/school-subjects/chemical-engineer	Bus or Coach Driver https://www.unifrog.org/student/careers/keywords/bus-or-coach-driver
Employability skills	Aiming high Numeracy Creativity Literacy Independence Listening Communication Presenting Teamwork Problem solving Staying positive Leadership	Aiming high Numeracy Creativity Literacy Independence Listening Communication Presenting Teamwork Problem solving Staying positive Leadership	Aiming high Numeracy Creativity Literacy Independence Listening Communication Presenting Teamwork Problem solving Staying positive Leadership
Assessment	S4 in class formal assessment, followed by common misconceptions and corrections lesson.	D2 in class formal assessment, followed by common misconceptions and corrections lesson.	N3 in class formal assessment, followed by common misconceptions and corrections lesson.
	Half Term Assessment: Units N4, N5, A3, A4, S4, D2, N3		

Y10H
HT3
6.5 weeks

	A1 (Block 5) 1 week	S1 (Block 5) 3 weeks	S3 (Block 4) 1-2 weeks
	A23 generate terms of a sequence from either a term-to-term or a position-to-term rule A24 recognise and use sequences of triangular, square and cube numbers, simple arithmetic progressions, Fibonacci type sequences (including algebraic), quadratic sequences, and simple geometric progressions (r^n where n is an integer, and r is a rational number > 0 or a surd) and other sequences A25 deduce expressions to calculate the n th term of linear and quadratic sequences	R1, R5, R11, R12 G14, G19 Solve problems involving mixed units, leading to similar shapes and area volume scale factors and expressing these using ratios R1,R11, G14 Calculations using compound units such as density and pressure, in numerical and algebraic contexts. Combining densities, working with mixed units. G4 Understand and apply the properties of special quadratilaterals including trapezia, kite, rhombus and other plane figures using appropriate language G16,17, 18, 23 Recap formulae to calculate area of triangles, parallelograms, trapezia, **Introduce area = 0.5absinC** Volumes and surface area of cubes, cuboids, other prisms including cylinders. Surface area and volume of spheres, pyramids and cones and composite solids involving these. G20 3D Pythagoras linking to volume and surface area above G20, G21, G22, G23 Recap trigonometry in right angled triangles, introduce exact values, extend to trigonometry in non right angled triangles (sine rule only, **cosine rule**)	G2 Derive and use standard ruler and compass constructions for: perpendicular bisector of a line segment, constructing a perpendicular to a given line from/at a given point, bisecting a given angle use these to construct given figures and solve loci problems; know that the perpendicular distance from a point to a line is the shortest distance to the line Link loci with scale drawing and bearings. G5, 6 Further congruence and similarity review, including link back to area/volume in similar figures from S1
Common misconceptions:	Forgetting to divide by 2 to find the coefficient of n^2 in quadratic sequences.	When using sine/cosine rule, forgetting that pairs of opposide sides and angles must be labelled with the same letter.	Erasing construction lines, misidentifying similar shapes in advanced questions and using the wrong lengths in calculations.
NC Codes	A23, A24, A25	R1, R5, R11, R12 G14, G19, G4, G16, G17, G18, G23, G20, G21, G22, G23	G2, G5, G6
Key Words	Tier 2: Term, sequence, Tier 3: arithmetic, linear, substitute, Fibonacci, square number, triangle number, quadratic, Fibonacci	Tier 2: Units, conversion, gradient, triangle, parallelogram, formula, formulae, scale factor, similar, quadrilateral, density. Tier 3: Volume, surface area, plane, perimeter, compound units, prism, cylinder, triangular prism, circumference, sector, sphere, cone, hypotenuse	Tier 2: construct, similar, parallel, equal. Tier 3: Quadrilateral, perpendicular, bisect, congruent, polygon, kite, trapezium, scale factor, segment, loci, bearing.
Homework	Hegarty maths tasks linked to current topic and ability of classes	Hegarty maths tasks linked to current topic and ability of classes	Hegarty maths tasks linked to current topic and ability of classes
Career links	Microbiologist https://www.unifrog.org/student/careers/school-subjects.k1/microbiologist	Architect https://www.unifrog.org/student/careers/school-subjects.k1/architect	Choreographer https://www.unifrog.org/student/careers/school-subjects.k1/architect
Employability skills	Aiming high Numeracy Creativity Literacy Independence Listening Communication Presenting Teamwork Problem solving Staying positive Leadership	Aiming high Numeracy Creativity Literacy Independence Listening Communication Presenting Teamwork Problem solving Staying positive Leadership	Aiming high Numeracy Creativity Literacy Independence Listening Communication Presenting Teamwork Problem solving Staying positive Leadership
Assessment	A2 in class formal assessment, followed by common misconceptions and corrections lesson.	S1 in class formal assessment, followed by common misconceptions and corrections lesson.	S3 in class formal assessment, followed by common misconceptions and corrections lesson.
	Half Term Assessment: Units N4, N5, A3, A4, S4, D2, N3, A1, S1, S3		

HT4
5 weeks

	N1 N2 (Block 5) 2 weeks	A2 (Block 5) 3+ weeks with HTT
	N2 Recap of non calculator skills with positive, negative and decimal values. Solving problems in context with these and doing so fluently. N13 Confidently converting between measures of mass, length, time, and money, including compound measures. Focus on fluency converting between units of time for calculations involving speed, distance and time. N10 Recurring decimals to fractions and vice versa with more complex decimals. N14/15 Review of rounding to a given number of decimal places or significant figures, leading to review of estimation, checking both calculator and non calculator answers by estimating. N15/16 Using inequality notation to express error intervals due to truncation or rounding. Apply and interpret limits of accuracy including calculations with upper and lower bounds - **focus on questions involving using bounds to give an answer to an appropriate degree of accuracy.** N7 calculate with roots, and with integer and fractional indices including negative integer and fractional indices, **solving questions involving writing an equation in terms of a single power of an integer** (usually N3 but fits well here with sequencing to A2)	A2, A4, A5 Substitution review - into formulae and expressions, including scientific formulae. Manipulation further review including rearranging equations, leading to rearranging equations of graphs. Further rules involving powers, including algebraic expressions with indices and the link with N7 involving numeric values written with algebraic powers. **Expressing integers with algebraic powers as an integer with a single power, solving equations with algebraic powers using power laws.** A7 Functions - substitution into these, inverse and basic composite functions. Link to graph transformations. A8, 9, 10 Plot linear graphs and build confidence with coordinate geometry. Identify parallel and perpendicular lines for equations in the form y=mx+c and those which require rearranging. Find the equation of a line given a gradient and a point, or using two points. Find the equation of parallel and perpendicular lines to a given equation using y=mx+c A11 - quadratic graph fluency. Identify and interpret roots, intercepts and tuning points (given completed square form at this stage) using algebraic skills. A17-19 Solving equations using graphs - quadratic equations, linear equations (including simultaneous) R15,A15 Gradient of a curve introduction, furthered in N4/5 EOY - area under a graph given an equation or in context e.g. . Distance/velocity - time. Understanding limitations of methods for finding area under a graph. A12 Graphs of more complex functions such as cubics, reciprocals, exponentials and circles centre origin. (May have to use an equation of non origin centre to **find the equation of a tangent to a circle at a given point.**)
Common misconceptions:	Using the wrong pair of values in bounds calculations to find the overall upper and lower bound.	Writing inverse functions incorrectly due to misunderstanding the concept and not fully finding the inverse function by considering order.
NC Codes	N2, N13, N10, N14, N15, 16, N7	A2, A4, A5, A7, A8, A9, A10, A11, A17, A18, A19, R15, A15, A12
Key Words	Tier 2: Value, positive, negative, addition, subtraction, decimal, sum, compare, integer, estimate, rounding, significant, interpret, inequality, multiply, divide, remainder, power, operation, appropriate, fraction Tier 3: Error Interval, truncate, single power	Tier 2: Substitute, expression, function, formula, axes, scale, plot, interpret, linear, quadrants, horizontal, vertical, identify, gradient, intercept Tier 3: algebraic, polygons, midpoint, trigonometric, cubic, quadratic, reciprocal, tangent
Homework	Hegarty maths tasks linked to current topic and ability of classes	Hegarty maths tasks linked to current topic and ability of classes
Career links	Tax Inspector https://www.unifrog.org/student/careers/school-subjects/tax-inspector	Computer Programmer https://www.unifrog.org/student/careers/keywords/computer-programmer
Employability skills	Aiming high Numeracy Creativity Literacy Independence Listening Communication Presenting Teamwork Problem solving Staying positive Leadership	Aiming high Numeracy Creativity Literacy Independence Listening Communication Presenting Teamwork Problem solving Staying positive Leadership
Assessment	N1 and N2 in class formal assessment, followed by common misconceptions and corrections lesson.	A2 in class formal assessment, followed by common misconceptions and corrections lesson.
	Half Term Assessment: Units N4, N5, A3, A4, S4, D2, N3, A1, S1, S3, N1, N2, A2	

Y10H

HT5

6 weeks

	A2 continued if needed	
	D1 (Block 5) 2 - 3 weeks	S2 (Block 4) 2 weeks
	S1 infer properties of populations or distributions from a sample, while knowing the limitations of sampling S2 Review basic charts and diagrams including line graphs for time series, pie charts, frequency polygons S3 Histograms - drawing, finding frequencies, histograms given without a scale and how to calculate probabilities and estimates for median, mean from a given graph. S4 Cumulative frequency graphs, box plots and finding median, quartiles, IQR and other values from them such as the number of people over/under a certain value, probability of this. Considering outliers. S5 Comparing sets of data using a measure of central tendency and a measure of spread, critiquing statistical diagrams. Reversing the mean and combining means for groups of different sizes. S6 Use and interpret scatter graphs for bivariate data, recognise correlation and know that it does not indicate causation, draw lines of best fit and use them to make predictions - interpolating and extrapolating whilst knowing the dangers/limitations of this.	R2, G15 Use scale factors, scale diagrams and maps - link to bearings, pythagoras, trigonometry G1, G3 recap angle rules such as angles at a point, on a line, vertically opposite, angles in parallel lines, angles in a triangle and use this to deduce properties of angles in any polygon - interior and exterior angles, including properties of regular polygons, justify methods with accurate reasoning and language G9, G10 Apply **and prove** standard circle theorems G16,17,18 circles. Calculate arc lengths, angles and sectors of circles. Leave answers in terms of pi.
Common misconceptions:	Using frequency density as frequency in histograms.	Misuse of circle theorems, for example using cyclic quadrilateral for a 4 sided shape which does not have all four points on the circumference of the circle.
NC Codes	S1, S2, S3, S4, S5, S6	R2, G15, G1, G3, G9, G10, G16, G17, G18, N8
Key Words	Tier 2: Sample, frequency, compare, interpret, bar chart, correlation. Tier 3: mean, cumulative, histogram, causation, box plot, quartile, interquartile range, median, mode, range, analysis, pie chart	Tier 2: Estimate, measure, calculate, construct, scale, regular, parallel, alternate, corresponding, sum, deduce, interior, exterior, accurate. Tier 3: Angle, acute, obtuse, reflex, right angle, protractor, isosceles, equilateral triangle, quadrilateral, polygon, bisect, loci, perpendicular, bearing, theorem, arc, sector, exact.
Homework	Hegarty maths tasks linked to current topic and ability of classes	Hegarty maths tasks linked to current topic and ability of classes
Career links	Naval Officer https://www.unifrog.org/student/careers/mathematics/royal-navy-officer	Archivist https://www.unifrog.org/student/careers/keywords/archivist
Employability skills	Aiming high Numeracy Creativity Literacy Independence Listening Communication Presenting Teamwork Problem solving Staying positive Leadership	Aiming high Numeracy Creativity Literacy Independence Listening Communication Presenting Teamwork Problem solving Staying positive Leadership
Assessment	D1 in class formal assessment, followed by common misconceptions and corrections lesson.	S2 in class formal assessment, followed by common misconceptions and corrections lesson.
	Mock exams wc 21/11 and 28/11	

HT6

6.5 weeks

Work Experience wc 3/7	N4 N5 (Block 5) 3 weeks	A3/A4 (Block 5) 3 weeks + Mock Exams and work experience
	Percentages R9, N12 Recap percentages, calculating using mental and calculator methods. Percentage increase and decrease, one quantity as a percentage of another, reverse percentages, simple and compound interest. Familiarity with multipliers and confidence using them to represent appreciation and depreciation/growth and decay. **Ratio, Proportion and rates of change** R4-R8 Recap ratio skills, including simplifying and the relationship between fractions and ratio and relating two quantities given in a ratio using an equation. Using ratio in context i.e. scales, combining ratios. R10, R12 Solve problems involving direct and inverse proportion including algebraic and graphical contexts. R13, R14 Further graphical representations of proportion, gradients as a rate of change. R15 Gradients at a point on a curve by drawing a tangent representing instantaneous rate of change - e.g. acceleration at a time. R16, A20 Further iterative processes, **estimating solutions to equations using iterative formulae.**	A1, 3, 4, 6 Algebraic manipulation review - simplfifying algebraic fractions Expansion of one, two or more brackets Factorisation of all types into one bracket, and with quadratic expressions and equations, including difference of two squares, completing the square (link to quadratic graphs) A17 Solve equations review and further - linear equations of all forms, including those with algebraic fractions, especially those with different algebraic denominators. A18 Solving quadratic equations by factorisation, using the quadratic formula, by completing the square. A19 Solving simultaneous equations where both are linear or where one is quadratic and one is linear. A22 solve linear inequalities, representing solution using on a numberline, using set notation or on a graph. Solve multiple inequalities graphically. A22 solve quadratic inequalities representing the solution on a numberline, in set notation or graphically. A21 Solve problems in context using equations, by forming an equation or simultaneous equations, interpret the solution in context. A7 Further functions - review and extend from A2, solving equations with composite and inverse functions
Common misconceptions:	Continuing iterative processes beyond the correct number of iterations, reading from a curve rather than calculating the gradient when asked to estimate.	Solving quadratic inequalities correctly until giving a final answer, assuming the symbol with each obtained value rather than considering the graph.
NC Codes	R9, N12, R4, R5, R6, R7, R8, R10, R12, R13, R14, R15, R16, A20, IT2	A1, A3, A4, A5, A17, A18, A19, A22, A21, A7, IT2
Key Words	Tier 2: Percentage, decimal, ratio, fraction, equivalent, percentage, percentage increase, percentage decrease, percentage change, proportion, direct and inverse proportion, convert. Tier 3: Numerator, denominator, simple interest, compound interest, multiplier, mixed number, improper fraction, reverse percentage, depreciation.	Tier 2: terms, expressions, equations, , variable, function, inverse, identities, inequality , rearrange, satisfy, expand, rearrange, simultaneous., linear. Tier 3: like terms, simplify, expand, identities, inequality, change the subject, factorise, set notation
Homework	Hegarty maths tasks linked to current topic and ability of classes	Hegarty maths tasks linked to current topic and ability of classes
Career links	Epidemiologist https://www.unifrog.org/student/careers/school-subjects/epidemiologist	Astronomer https://www.unifrog.org/student/careers/school-subjects.k1/astronomer
Employability skills	Aiming high Numeracy Creativity Literacy Independence Listening Communication Presenting Teamwork Problem solving Staying positive Leadership	Aiming high Numeracy Creativity Literacy Independence Listening Communication Presenting Teamwork Problem solving Staying positive Leadership
Assessment	N4 and N5 in class formal assessment, followed by common misconceptions and corrections lesson.	A3/4 in class formal assessment, followed by common misconceptions and corrections lesson.
	Mock Examinations wc 19/6 and 26/6	

Y11F

HT1

6.5 weeks

	S4 (Block 5) 2 weeks	D2 (Block 5) 2 weeks	S3 (Block 5) 2 weeks
	• Describe reflections using equation of line and axes • Identify properties of each type of transformation and describe transformations • Combine two or more transformations • Enlarge a shape using a fractional scale factor • Construct similar shapes by enlargement, with and without coordinate grids; find missing lengths in similar shapes • Vector review	• Calculate probability of combined events using sample spaces, extend tree diagrams to dependent events (i.e. no replacement) • Compare the theoretical with the experimental number of outcomes (including relative frequency) for a combined event, understand that unbiased samples tend towards theoretical probability • Solve probability questions in context, e.g. expected profit from a game. • Use Venn diagrams to represent intersections and unions • Solve probability questions using Venn diagrams	• Derive and use standard ruler and compass constructions for: - the perpendicular from a point to a given line - angles of 45, 30 etc • Recognise and use that the perpendicular distance is the shortest distance from a point to a line • Construct and interpret plans and elevations of 3d shapes. • Construct simple loci
Common misconceptions:	Stating more than one transformation for 'describe the single transformation which…' questions.	Putting numbers in more than one place, i.e. if in set A, it will be place in A only and in the intersection. Forgetting to put unused numbers outside the circles.	Changing width of compass between steps, understanding the difference between just a perpendicular line and going through a given point.
NC Codes	G7, G11, G14, G15, G19, G24, G25	P3, P4, P5, P6, P7, P8	G13, G2, G15
Key Words	Tier 2: Reflect, describe, draw, translate. Tier 3: Centre of enlargement/rotation, vector, scale factor.	Tier 2: Bias, unbiased, event, theoretical. Tier 3: Probability, outcome, expected success, relative frequency, tree diagram, sample space, venn diagram, set notation, mutually exclusive.	Tier 2: construct, similar, parallel, equal. Tier 3: Quadrilateral, perpendicular, bisect, congruent, polygon, kite, trapezium.
Homework	Hegarty maths tasks linked to current topic and ability of classes	Hegarty maths tasks linked to current topic and ability of classes	Hegarty maths tasks linked to current topic and ability of classes
Career links	Construction Manager https://www.unifrog.org/student/careers/school-subjects/construction-manager	Credit Risk Analyst https://www.unifrog.org/student/careers/school-subjects/credit-analyst	Structural Engineer https://www.unifrog.org/student/careers/school-subjects.k1/structural-engineer
Employability skills	Aiming high Numeracy Creativity Literacy Independence Listening Communication Presenting Teamwork Problem solving Staying positive Leadership	Aiming high Numeracy Creativity Literacy Independence Listening Communication Presenting Teamwork Problem solving Staying positive Leadership	Aiming high Numeracy Creativity Literacy Independence Listening Communication Presenting Teamwork Problem solving Staying positive Leadership
Assessment	S4 in class formal assessment, followed by common misconceptions and corrections lesson.	D2 in class formal assessment, followed by common misconceptions and corrections lesson.	S3 in class formal assessment, followed by common misconceptions and corrections lesson.
	Practice Papers throughout half term, Half Term Assessment: Units S4, D2, S3		

HT2

7 Weeks

	N3 (Block 5) 2 weeks + Mocks	S2 (Block 5) 2 weeks
	· Solve problems involving the use of prime factor decomposition; use Venn diagrams to help find HCF/LCM; · Find square root using prime factors - use of FACT button on calculator · Use integer powers and associated roots and distinguish between exact representations of roots and their decimal approximations · Interpret, compare numbers and calculate with numbers in standard form (positive and negative powers) - link with index laws in algebra and how this applies to number	• Solve multi-step angles calculations which require use of algebra and shape properties, including justification of method using rules. • Use known results to obtain simple proofs • Understand how the angle sum in a triangle can be applied to finding the angle sum for any polgyon and angles in regular polygons. • Construct regular polygons • Solve problems with bearings and constructions
Common misconceptions:	Misuse of venn diagram, confusing HCF and LCM	Assuming a right angle when it is not stated as such, and understanding that perpendicular means 90 degrees.
NC Codes	N3, N4, N6, N7, N9	G1, G2, G3, G4, G6, G14, G15
Key Words	Tier 2: Factor, common, multiple. Tier 3: highest common factor, lowest common multiple, prime number, square number, square root, indices, factorisation, standard form. Tier 3: Reciprocal	Tier 2: Estimate, measure, calculate, construct, scale, regular, proof, alternate, corresponding, sum, deduce, interior, exterior. Tier 3: Angle, acute, obtuse, reflex, right angle, protractor, isosceles, equilateral triangle, quadrilateral, polygon, bisect, loci, perpendicular
Homework	Hegarty maths tasks linked to current topic and ability of classes	Hegarty maths tasks linked to current topic and ability of classes
Career links	Naval Architecht https://www.unifrog.org/student/careers/school-subjects.k1/naval-architect	Product Designer https://www.unifrog.org/student/careers/school-subjects/electrician
Employability skills	Aiming high Numeracy Creativity Literacy Independence Listening Communication Presenting Teamwork Problem solving Staying positive Leadership	Aiming high Numeracy Creativity Literacy Independence Listening Communication Presenting Teamwork Problem solving Staying positive Leadership
Assessment	N3 in class formal assessment, followed by common misconceptions and corrections lesson.	S2 in class formal assessment, followed by common misconceptions and corrections lesson.
	Mocks wc 31/10 and 7/11, Practice Papers throughout half term	

HT3

6.5 weeks

Alongside extensive use of past papers, practice papers and other exam preparation materials, the focus areas for topic based revision should be number and statistics. Edexcel Specification Statements below for teacher awareness, and the chosen topics should be based upon QLA from mock exams and assessments, alongside requests from pupils. This could be done in starters, for homework, or as partial/full lessons to provide variety and consolidation for pupils in the approach to examinations.

Number and Statistics Focus

N1 order positive and negative integers, decimals and fractions; use the symbols =, ≠, <, >, ≤, ≥	**Fractions, decimals and percentages**	S1 infer properties of populations or distributions from a sample, while knowing the limitations of sampling
N2 apply the four operations, including formal written methods, to integers, decimals and simple fractions (proper and improper), and mixed numbers	N10 work interchangeably with terminating decimals and their corresponding fractions	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
– all both positive and negative; understand and use place value (e.g. when working with very large or very small numbers, and when calculating with decimals)	N11 identify and work with fractions in ratio problems	S4 interpret, analyse and compare the distributions of data sets from univariate empirical distributions through:
N3 recognise and use relationships between operations, including inverse operations (e.g. cancellation to simplify calculations and expressions); use conventional notation for priority of operations, including brackets, powers, roots and reciprocals	N12 interpret fractions and percentages as operators	● appropriate graphical representation involving discrete, continuous and grouped data ● appropriate measures of central tendency (median, mean, mode and modal class) and spread (range, including consideration of outliers)
N4 use the concepts and vocabulary of prime numbers, factors (divisors), multiples, common factors, common multiples, highest common factor, lowest common multiple, prime factorisation, including using product notation and the unique factorisation theorem	**Measures and Accuracy**	S5 apply statistics to describe a population
N5 apply systematic listing strategies	N13 use standard units of mass, length, time, money and other measures (including standard compound measures) using decimal quantities where appropriate	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
N6 use positive integer powers and associated real roots (square, cube and higher), recognise powers of 2, 3, 4, 5	N14 estimate answers; check calculations using approximation and estimation, including answers obtained using technology	
N7 calculate with roots, and with integer indices	N15 round numbers and measures to an appropriate degree of accuracy (e.g. to a specified number of decimal places or significant figures); use inequality notation to specify simple error intervals due to truncation or rounding	
N8 calculate exactly with fractions and multiples of π	N16 apply and interpret limits of accuracy	
N9 calculate with and interpret standard form A × 10n, where 1 ≤ A < 10 and n is an integer		

Assessment	**Mocks wc 9/1 and 16/1, Practice Papers throughout half term**

HT4

5 weeks

Alongside extensive use of past papers, practice papers and other exam preparation materials, the focus areas for topic based revision should be probability and shape. Edexcel Specification Statements below for teacher awareness, and the chosen topics should be based upon QLA from mock exams and assessments, alongside requests from pupils. This could be done in starters, for homework, or as partial/full lessons to provide variety and consolidation for pupils in the approach to examinations.

Probability and Shape Focus

Probability	**Geometry and Measures**	**Mensuration and calculation**
P1 record, describe and analyse the frequency of outcomes of probability experiments using tables and frequency trees	G1 use conventional terms and notation: points, lines, vertices, edges, planes, parallel lines, perpendicular lines, right angles, polygons, regular polygons and polygons with reflection and/or rotation symmetries; use the standard conventions for labelling and referring to the sides and angles of triangles; draw diagrams from written description	G14 use standard units of measure and related concepts (length, area, volume/capacity, mass, time, money, etc.)
P2 apply ideas of randomness, fairness and equally likely events to calculate expected outcomes of multiple future experiments	G2 use the standard ruler and compass constructions (perpendicular bisector of a line segment, constructing a perpendicular to a given line from/at a given point, bisecting a given angle); use these to construct given figures and solve loci problems; know that the perpendicular distance from a point to a line is the shortest distance to the line	G15 measure line segments and angles in geometric figures, including interpreting maps and scale drawings and use of bearings
P3 relate relative expected frequencies to theoretical probability, using appropriate language and the 0-1 probability scale	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)	G16 know and apply formulae to calculate: area of triangles, parallelograms, trapezia; volume of cuboids and other right prisms (including cylinders)
P4 apply the property that the probabilities of an exhaustive set of outcomes sum to one; apply the property that the probabilities of an exhaustive set of mutually exclusive events sum to one	G4 derive and apply the properties and definitions of special types of quadrilaterals, including square, rectangle, parallelogram, trapezium, kite and rhombus; and triangles and other plane figures using appropriate language	G17 know the formulae: circumference of a circle = $2\pi r = \pi d$, area of a circle = πr^2; calculate: perimeters of 2D shapes, including circles; areas of circles and composite shapes; surface area and volume of spheres, pyramids, cones and composite solids
P5 understand that empirical unbiased samples tend towards theoretical probability distributions, with increasing sample size	G5 use the basic congruence criteria for triangles (SSS, SAS, ASA, R HS)	G18 calculate arc lengths, angles and areas of sectors of circles
P6 enumerate sets and combinations of sets systematically, using tables, grids, Venn diagrams and tree diagrams	G6 apply angle facts, triangle congruence, similarity and properties of quadrilaterals to conjecture and derive results about angles and sides, including Pythagoras' Theorem and the fact that the base angles of an isosceles triangle are equal, and use known results to obtain simple proofs	G19 apply the concepts of congruence and similarity, including the relationships between lengths, areas and volumes in similar figures
P7 construct theoretical possibility spaces for single and combined experiments with equally likely outcomes and use these to calculate theoretical probabilities	G7 identify, describe and construct congruent and similar shapes, including on coordinate axes, by considering rotation, reflection, translation and enlargement (including fractional scale factors)	G20 know the formulae for: Pythagoras' theorem and the trigonometric ratios,
P8 calculate the probability of independent and dependent combined events, including using tree diagrams and other representations, and know the underlying assumptions	G9 identify and apply circle definitions and properties, including: centre, radius, chord, diameter, circumference, tangent, arc, sector and segment	G21 Exact values for sin cos tan of 0, 30, 45, 60, 90
	G11 solve geometrical problems on coordinate axes	**Vectors**
	G12 identify properties of the faces, surfaces, edges and vertices of: cubes, cuboids, prisms, cylinders, pyramids, cones and spheres	G24 describe translations as 2D vectors
	G13 construct and interpret plans and elevations of 3D shapes	G25 apply addition and subtraction of vectors, multiplication of vectors by a scalar, and diagrammatic and column representations of vectors

Assessment	**Mocks wc 6/3 and 13/3, Practice Papers throughout half term**

HT5

6 weeks

Alongside extensive use of past papers, practice papers and other exam preparation materials, the focus areas for topic based revision should be algebra, notably reasoning and proof skills. Edexcel Specification Statements below for teacher awareness, and the chosen topics should be based upon QLA from mock exams and assessments, alongside requests from pupils. This could be done in starters, for homework, or as partial/full lessons to provide variety and consolidation for pupils in the approach to examinations.

Algebra Focus

	Graphs	
A1 use and interpret algebraic manipulation, including: ab, 3y, a^3, a/b, coefficients as fractions rather than decimals and brackets		A18 solve quadratic equations algebraically by factorising; find approximate solutions using a graph
A2 substitute numerical values into formulae and expressions, including scientific formulae	A8 work with coordinates in all four quadrants	A19 solve two simultaneous equations in two variables (linear/linear algebraically; find approximate solutions using a graph
A3 understand and use the concepts and vocabulary of expressions, equations, formulae, identities, inequalities, terms and factors	A9 plot graphs of equations that correspond to straight-line graphs in the coordinate plane; use the form y = mx + c to identify parallel lines; find the equation of the line through two given points or through one poi nt with a given gradient	A21 translate simple situations or procedures into algebraic expressions or formulae; derive an equation (or two simultaneous equations), solve the equation(s) and interpret the solution
A4 simplify and manipulate algebraic expressions (including those involving surds) ● collecting like terms	A10 identify and interpret gradients and intercepts of linear functions graphically and algebraically	A22 solve linear inequalities in one variable; represent the solution set on a number line
		Sequences
● multiplying a single term over a bracket ● taking out common factors ● expanding products of two binomials ● factorising quadratic expressions of the form x2 + bx + c, including the difference of two squares;	A11 identify and interpret roots, intercepts, turning points of quadratic functions graphically; deduce roots algebraically and turning points by completing the square	A23 generate terms of a sequence from either a term-to-term or a position-toterm rule
● simplifying expressions involving sums, products and powers, including the laws of indices	A12 recognise, sketch and interpret graphs of linear functions, quadratic functions, simple cubic functions, the reciprocal function	A24 recognise and use sequences of triangular, square and cube numbers, simple arithmetic progressions, Fibonacci type sequences, quadratic sequences, and simple geometric progressions (r n where n is an integer, and r is a rational number > 0)
A5 understand and use standard mathematical formulae; rearrange formulae to change the subject	A13 Higher only	A25 deduce expressions to calculate the nth term of linear sequences
A6 know the difference between an equation and an identity; argue mathematically to show algebraic expressions are equivalent, and use algebra to support and construct arguments	A14 plot and interpret graphs (including reciprocal graphs) and graphs of non-standard functions in real contexts to find approximate solutions to problems such as simple kinematic problems involving distance, speed and acceleration	
A7 where appropriate, interpret simple expressions as functions with inputs and outputs.	A17 solve linear equations in one unknown algebraically (including those with the unknown on both sides of the equation); find approximate solutions using a graph	

Assessment	**External Exams Begin wc 15/5 - Practice Papers throughout half term**

Y11H

HT1 6.5 weeks

	S4 (Block 5) 2 weeks	D2 (Block 5) 2 weeks	S3 (Block 5) 2 weeks
	G9, 10 Identify, describe and perform transformations of shapes on a set of axes. Rotation, reflection, translation, enlargement (including negative and fractional scale factors) - explain invariance achieved by combinations of rotations, reflections and translations. G5,6,7 Geometric proof using congruence, circle theorems. G24, 25 Further vectors and geometric proof using vectors. A12 Graph transformations (translations and reflections only), emphasis on function notation and link to how it changes algebraic equation of graph	P5, P7 Understanding and using theoretical and experiemetal probabilities (including relative frequency), and that unbiased experimental samples tend towards theoretical probabilities with increasing sample size. P4 Apply the concept of the probabilities of an exhaustive set of outcomes (and an exhaustive set of mutually exclusive outcomes) sum to one, also in algebraic contexts P7, P8, P9 Tree diagrams review: dependent and independent events, finding probabilities for a single event given a combined probability, algebraic probability problems involving unknown sample sizes N5 Product rule for counting P6 Venn diagrams review - set notation, calculating probabilities P9 Conditional probability.	G1, 2, 15 Review constructions, applications to loci, bearings and scale drawing. Review of plans, elevations. Review basic Pythagoras and trigonometry here in context to further understanding prior to S2. Graphs of trigonometric functions (A12) and understand their properties such as period.
Common misconceptions:	Stating more than one transformation for 'describe the single transformation which...' questions.	Trial and error with problems which should be approached algebraically	Changing width of compass between steps, using a severely rounded value in multi step problems leading to inaccurate answers.
NC Codes	G9, G10, G5, G6, G7, G24, G25, A12	P5, P6, P7, P8, P9, P4, P3	G1, G2, G15, G20, G21, A12
Key Words	Tier 2: Transform, combination, proof, vector. Tier 3: gometric, graph transformation, invariance, scale factor	Tier 2: Bias, unbiased, event, theoretical. Tier 3: Probability, outcome, expected success, relative frequency, tree diagram, sample space, venn diagram, set notation, mutually exclusive.	Tier 2: construct, scale, plan, elevation. Tier 3: Bearing, loci, bisect, hypotenuse, period (of a function), trigonometric
Homework	Hegarty maths tasks linked to current topic and ability of classes	Hegarty maths tasks linked to current topic and ability of classes	Hegarty maths tasks linked to current topic and ability of classes
Career links	Construction Manager https://www.unifrog.org/student/careers/school-subjects/construction-manager	Credit Risk Analyst https://www.unifrog.org/student/careers/school-subjects/credit-analyst	Structural Engineer https://www.unifrog.org/student/careers/school-subjects.k1/structural-engineer
Employability skills	Aiming high Numeracy Creativity Literacy Independence Listening Communication Presenting Teamwork Problem solving Staying positive Leadership	Aiming high Numeracy Creativity Literacy Independence Listening Communication Presenting Teamwork Problem solving Staying positive Leadership	Aiming high Numeracy Creativity Literacy Independence Listening Communication Presenting Teamwork Problem solving Staying positive Leadership
Assessment	S4 in class formal assessment, followed by common misconceptions and corrections lesson.	D2 in class formal assessment, followed by common misconceptions and corrections lesson.	S3 in class formal assessment, followed by common misconceptions and corrections lesson.
	Half Term Assessment: Units S4, D2, S3		

HT2 7 Weeks

	N3 (Block 5) 2 weeks + Mocks	S2 (Block 5) 2 weeks
	N4 Recap prime factorisation (including FACT button on calc), finding HCF and LCM for all numbers, including those given in index form (e.g. by using a venn diagram) N7 Recap fractional and negative indices, including fractional negative indices. Solving questions involving writing an equation in terms of a single power of an integer N8 Surds full review, simplifying, expanding brackets with surds, rationalising denominators. Using surd values in calculations to maintain accuracy. N1/9 Standard form review.	G16, G20, G21, G22, G23 Pythagoras and trigonometry full review Pythagoras and right angled trigonometry in 2D, 3D shapes and in context, trigonometry exact values Non right angled trigonometry including sine rule (and ambiguous case), cosine rule, and A=0.5absinC G9, G10, G1, G3 Apply and prove circle theorems, justifying methods with accurate reasoning
Common misconceptions:	Assuming a negative index results in a negative value, confusing negative and fractional indices.	Using an incorrect side when interpreting 'the angle between side AB and the plane DEFG' in 3D trigonometry.
NC Codes	N4, N7, N8, N1, N9	G1, G3, G16, G20, G21, G22, G23, G9, G10
Key Words	Tier 2: Factor, common, multiple. Tier 3: highest common factor, lowest common multiple, prime number, square number, square root, indices, factorisation, standard form. Tier 3: Reciprocal	Tier 2: Estimate, measure, calculate, construct, scale, regular, parallel, ambiguous, deduce, interior, exterior, accurate, cyclic. Tier 3: alternate, isosceles, equilateral triangle, quadrilateral, polygon, bisect, theorem, arc, sector, exact.
Homework	Hegarty maths tasks linked to current topic and ability of classes	Hegarty maths tasks linked to current topic and ability of classes
Career links	Naval Architecht https://www.unifrog.org/student/careers/school-subjects.k1/naval-architect	Product Designer https://www.unifrog.org/student/careers/school-subjects/electrician
Employability skills	Aiming high Numeracy Creativity Literacy Independence Listening Communication Presenting Teamwork Problem solving Staying positive Leadership	Aiming high Numeracy Creativity Literacy Independence Listening Communication Presenting Teamwork Problem solving Staying positive Leadership
Assessment	N3 in class formal assessment, followed by common misconceptions and corrections lesson.	S2 in class formal assessment, followed by common misconceptions and corrections lesson.
	Mocks wc 31/10 and 7/11, Practice Papers throughout half term	

Y11H

HT3 6.5 weeks

Alongside extensive use of past papers, practice papers and other exam preparation materials, the focus areas for topic based revision should be number and statistics. Edexcel Specification Statements below for teacher awareness, and the chosen topics should be based upon QLA from mock exams and assessments, alongside requests from pupils. This could be done in starters, for homework, or as partial/full lessons to provide variety and consolidation for pupils in the approach to examinations.

Number and Statistics Focus

N1 order positive and negative integers, decimals and fractions; use the symbols =, ≠, <, >, ≤, ≥	**Fractions, decimals and percentages**	S1 infer properties of populations or distributions from a sample, while knowin g the limitations of sampling
N2 apply the four operations, including formal written methods, to integers, decimals and simple fractions (proper and improper), and mixed numbers – all both positive and negative; understand and use place value (e.g. when working with very large or very small numbers, and when calculating with decimals)	N10 work interchangeably with terminating decimals and their corresponding fractions	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
N3 recognise and use relationships between operations, including inverse operations (e.g. cancellation to simplify calculations and expressions); use conventional notation for priority of operations, including brackets, powers, roots and reciprocals	N11 identify and work with fractions in ratio problems	S4 interpret, analyse and compare the distributions of data sets from univariate empirical distributions through:
N4 use the concepts and vocabulary of prime numbers, factors (divisors), multiples, common factors, common multiples, highest common factor, lowest common multiple, prime factorisation, including using product notation and the unique factorisation theorem	N12 interpret fractions and percentages as operators	• appropriate graphical representation involving discrete, continuous and grouped data
N5 apply systematic listing strategies	**Measures and Accuracy**	• appropriate measures of central tendency (median, mean, mode and modal class) and spread (range, including consideration of outliers)
N6 use positive integer powers and associated real roots (square, cube and higher), recognise powers of 2, 3, 4, 5	N13 use standard units of mass, length, time, money and other measures (including standard compound measures) using decimal quantities where appropriate	S5 apply statistics to describe a population
N7 calculate with roots, and with integer indices	N14 estimate answers; check calculations using approximation and estimation, including answers obtained using technology	S6 use and interpret scatter graphs of bivariate data; recognise correlation,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
N8 calculate exactly with fractions and multiples of π	N15 round numbers and measures to an appropriate degree of accuracy (e.g. to a specified number of dps or sfs);inequality notation to specify simple error intervals due to truncation or rounding	
N9 calculate with and interpret standard form A × 10n, where 1 ≤ A < 10 and n is an integer	N16 apply and interpret limits of accuracy	

Assessment	**Mocks wc 9/1 and 16/1, Practice Papers throughout half term**

HT4 5 weeks

Alongside extensive use of past papers, practice papers and other exam preparation materials, the focus areas for topic based revision should be probability and shape. Edexcel Specification Statements below for teacher awareness, and the chosen topics should be based upon QLA from mock exams and assessments, alongside requests from pupils. This could be done in starters, for homework, or as partial/full lessons to provide variety and consolidation for pupils in the approach to examinations.

Probability and Shape Focus

P1 record, describe and analyse the frequency of outcomes of probability experiments using tables and frequency trees	G1 use conventional terms and notations: points, lines, vertices, edges, planes, parallel lines, perpendicular lines, right angles, polygons, regular polygons and polygons with reflection and/or rotation symmetries; use the standard conventions for labelling and referring to the sides and angles of triangles; draw diagrams from written description	**Mensuration and calculation**
P2 apply ideas of randomness, fairness and equally likely events to calculate expected outcomes of multiple future experiments	G2use the standard ruler and compass constructions (perpendicular bisector of a line segment, constructing a perpendicular to a given line from/at a given point, bisecting a given angle); use these to construct given figures and solve loci problems; know that the perpendicular distance from a point to a line is the shortest distance to the line	G14 use standard units of measure and related concepts (length, area, volume/capacity, mass, time, money, etc.)
P3 relate relative expected frequencies to theoretical probability, using appropriate language and the 0-1 probability scale	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)	G15 measure line segments and angles in geometric figures, including interpreting maps and scale drawings and use of bearings
P4 apply the property that the probabilities of an exhaustive set of outcomes sum to one; apply the property that the probabilities of an exhaustive set of mutually exclusive events sum to one	G4 derive and apply the properties and definitions of: special types of quadrilaterals, including square, rectangle, parallelogram, trapezium, kite and rhombus; and triangles and other plane figures using appropriate language	G16 know and apply formulae to calculate: area of triangles, parallelograms, trapezia; volume of cuboids and other right prisms (including cylinders)
P5 understand that empirical unbiased samples tend towards theoretical probability distributions, with increasing sample size	G5 use the basic congruence criteria for triangles (SSS, SAS, ASA, RHS)	G17 know the formulae: circumference of a circle = 2πr = πd , area of a circle = πr^2 ; calculate: perimeters of 2D shapes, including circles; areas of circles and composite shapes; surface area and volume of spheres, pyramids, cones and composite solids
P6 enumerate sets and combinations of sets systematically, using tables, grids, Venn diagrams and tree diagrams	G6 apply angle facts, triangle congruence, similarity and properties of quadrilaterals to conjecture and derive results about angles and sides, including Pythagoras' Theorem and the fact that the base angles of an isosceles triangle are equal, and use known results to obtain simple proofs	G18 calculate arc lengths, angles and areas of sectors of circles
P7 construct theoretical possibility spaces for single and combined experiments with equally likely outcomes and use these to calculate theoretical probabilities	G7 identify, describe and construct congruent and similar shapes, including on coordinate axes, by considering rotation, reflection, translation and enlargement (including fractional and negative scale factors)	G19 apply the concepts of congruence and similarity, including the relationships between lengths, areas and volumes in similar figures
P8 calculate the probability of independent and dependent combined events, including using tree diagrams and other representations, and know the underlying assumptions	G8 describe the changes and invariance achieved by combinations of rotations, reflections and translations	G20 know the formulae for: Pythagoras' theorem and the trigonometric ratios, apply them to find angles and lengths in right-angled triangles and, where possible, general triangles in two and three dimensional figures
P9 calculate and interpret conditional probabilities through representation using expected frequencies with two-way tables, tree diagrams and Venn diagrams	G9 identify and apply circle definitions and properties, including: centre, radius, chord, diameter, circumference, tangent, arc, sector and segment	G21 Exact values for sin cos tan of 0, 30, 45, 60, 90
	G10 apply and prove the standard circle theorems concerning angles, radii, tangents and chords, and use them to prove related results	G22 Know and apply the sine rule and cosine rule
	G11 solve geometrical problems on coordinate axes	G23 know and apply A = 0.5absinC
	G12 identify properties of the faces, surfaces, edges and vertices of: cubes, cuboids, prisms, cylinders, pyramids, cones and spheres	G24 describe translations as 2D vectors
	G13 construct and interpret plans and elevations of 3D shapes	G25 apply addition and subtraction of vectors, multiplication of vectors by a scalar, and diagrammatic and column representations of vectors; use vectors to construct geometric arguments and proofs

Assessment	**Mocks wc 6/3 and 13/3, Practice Papers throughout half term**

HT5 6 weeks

Alongside extensive use of past papers, practice papers and other exam preparation materials, the focus areas for topic based revision should be algebra, notably reasoning and proof skills. Edexcel Specification Statements below for teacher awareness, and the chosen topics should be based upon QLA from mock exams and assessments, alongside requests from pupils. This could be done in starters, for homework, or as partial/full lessons to provide variety and consolidation for pupils in the approach to examinations.

Algebra Focus

A1 use and interpret algebraic manipulation, including: ab, 3y, a^3, a/b, coefficients as fractions rather than decimals and brackets	**Graphs**	**Solving equations and inequalities**
A2 substitute numerical values into formulae and expressions, including scientific formulae	A8 work with coordinates in all four quadrants	A17 solve linear equations in one unknown algebraically (including those with the unknown on both sides of the equation); find approximate solutions using a graph
A3 understand and use the concepts and vocabulary of expressions, equations, formulae, identities, inequalities, terms and factors	A9 plot graphs of equations that correspond to straight-line graphs in the coordinate plane; use the form y = mx + c to identify parallel and perpendicular lines; find the equation of the line through two given points or through one point with a given gradient	A18 solve quadratic equations (including those that require rearrangement) algebraically by factorising, by completing the square and by using the quadratic formula; find approximate solutions using a graph
A4 simplify and manipulate algebraic expressions (including those involving surds and algebraic fractions) by:	A10 identify and interpret gradients and intercepts of linear functions graphically and algebraically	A19 solve two simultaneous equations in two variables (linear/linear or linear/quadratic) algebraically; find approximate solutions using a graph
• collecting like terms • multiplying a single term over a bracket • taking out common factors • expanding products of two or more binomials	A11 identify and interpret roots, intercepts, turning points of quadratic functions graphically; deduce roots algebraically and turning points by completing the square	A20 find approximate solutions to equations numerically using iteration A21 translate simple situations or procedures into algebraic expressions or formulae; derive an equation (or two simultaneous equations), solve the equation(s) and interpret the solution
• factorising quadratic expressions of the form $x^2 + bx + c$, including the difference of two squares; factorising quadratic expressions of the form $ax^2 + bx + c$	A12 recognise, sketch and interpret graphs of linear functions, quadratic functions, simple cubic functions, the reciprocal function , exponential functions y = k^x for positive values of k, and the trigonometric functions (with arguments in degrees) y = sin x, y = cos x and y = tan x for angles of any size	A22 solve linear inequalities in one or two variable(s), and quadratic inequalities in one variable; represent the solution set on a number line, using set notation and on a graph
• simplifying expressions involving sums, products and powers, including the laws of indices	A13 sketch translations and reflections of a given function	**Sequences**
A5 understand and use standard mathematical formulae; rearrange formulae to change the subject	A14 plot and interpret graphs (including reciprocal graphs and exponential graphs) and graphs of non-standard functions in real contexts to find approximate solutions to problems such as simple kinematic problems involving distance, speed and acceleration	A23 generate terms of a sequence from either a term-to-term or a position-toterm rule
A6 know the difference between an equation and an identity; argue mathematically to show algebraic expressions are equivalent, and use algebra to support and construct arguments and proofs	A15 calculate or estimate gradients of graphs and areas under graphs (including quadratic and other non-linear graphs), and interpret results in cases such as distance-time graphs, velocity-time graphs and graphs in financial contexts (this does not include calculus)	A24 recognise and use sequences of triangular, square and cube numbers, simple arithmetic progressions, Fibonacci type sequences, quadratic sequences, and simple geometric progressions (r n where n is an integer, and r is a rational number > 0 or a surd) and other sequences
A7 where appropriate, interpret simple expressions as functions with inputs and outputs; interpret the reverse process as the 'inverse function'; interpret the succession of two functions as a 'composite function' (the use of formal function notation is expected)	A16 recognise and use the equation of a circle with centre at the origin; find the equation of a tangent to a circle at a given point	A25 deduce expressions to calculate the nth term of linear and quadratic sequences

Assessment	**External Exams Begin wc 15/5 - Practice Papers throughout half term**