Higher Tier Maths Revision Checklist

Code	Topic	✓
N1	Comparing and ordering numbers	
N2	Calculating with integers	
	Calculating with decimals	
	Multiplying and dividing with fractions	
N3	Using the order of operations	
N4	Working with multiples, factors and prime numbers	
N5	Applying systematic methods for listing groups	
	Using the product rule for counting to enumerate the number of possible groups	
N6	Calculating with powers and roots	
	Estimating powers and roots of any given positive number	
N7	Using the laws of indices	
	Calculating with fractional indices	
N8	Manipulating fractions and mixed numbers	
	Adding and subtracting fractions and mixed numbers	
	Simplifying surdic expressions	
	Calculating with surds	
	Rationalising the denominator of surdic fractions	
N9	Working with numbers in standard form	
N10	Converting between fractions and decimals	
	Converting between recurring decimals and their corresponding fractions	
N11	Using ratio notation	
	Making links between fractions and ratios	
N12	Calculating with percentages	
	Converting between fractions and percentages	
N13	Using common units of measurement	
N14	Using estimation, including to check the accuracy of calculations	
N15	Understanding the use of rounding	
N16	Using upper and lower bounds	
	Calculating minimum and maximum amounts, using upper and lower bounds	
A1	Understanding algebraic notation	
A2	Substituting into expressions and formulae	
A3	Understanding and using algebraic language and symbols	
A4	Simplifying algebraic expressions by collecting like terms	
	Expanding and factorising using a single bracket	
	Expanding and factorising using two brackets	
	Using the laws of indices with algebraic terms	
	Expanding using three brackets	
	Factorising non-monic quadratic expressions	
	Working with algebraic fractions	
A5	Understanding and using formulae in words and algebraic formulae	
	Rearranging algebraic formulae to change the subject	
A6	Manipulating algebraic expressions to support statements	
	Using algebraic expressions to prove outcomes	
A7	Understanding and using function machines	
	Interpreting the reverse of a function machine as the 'inverse function'	
	Interpreting and using composite functions	

A8	Working with coordinates in four quadrants	
A9	Plotting straight line graphs	
	Using $y = mx + c$ to identify parallel graphs	
	Using $y = mx + c$ to identify perpendicular graphs	
	Using $y = mx + c$ and two points, or one point and the gradient, to write the equation of a line	
A10	Working out the gradient of a straight line	
	Working out the y-intercept of a straight line	
A11	Identifying roots, intercepts and turning points from a quadratic graph	
	Calculating roots of a quadratic graph algebraically	
	Deducing the turning point of a quadratic graph by completing the square	
A12	Making links between different types of graphs and their equations	
	Recognising, sketching and interpreting graphs of expontential functions	
	Recognising, sketching and interpreting graphs of trigonometric functions	
A13	Sketching translations and reflections of graphs of a given function	
A14	Plotting and interpreting real-life graphs, including exponential graphs	
	Solving problems involving speed, distance, time and acceleration using graphs	
A15	Calculating (or estimating) gradients of graphs, and interpreting results in context	
	Calculating (or estimating) areas under graphs, and interpreting results in context	
A16	Recognising and using the equation of a circle with centre (0, 0)	
	Finding the equation of a tangent to a circle at a given point	
A17	Solving linear equations with one unknown	
	Solving linear equations with one unknown on both sides	
	Solving linear equations using graphs	
A18	Solving quadratic equations, including those that require rearrangement, by factorising	
	Solving quadratic equations by using the quadratic formula	
	Solving quadratic equations by completing the square	
	Solving quadratic equations using graphs	
A19	Solving pairs of simultaneous equations using algebraic methods, including quadratic equations	
	Solving pairs of simultaneous equations using graphs	
A20	Finding approximate solutions to equations using iterative processes	
A21	Forming and solving equations (including simultaneous equations) from contexts	
A22	Solving linear inequalities with one or two variables	
	Solving quadratic inequalities with one variable	
	Representing inequalities on a number line	
	Representing the solution set to inequalities using set notation	
	Plotting inequalities in two variables to identify regions	
A23	Writing the terms of a sequence from a rule given in words	
	Writing the terms of a sequence from a given nth term	
A24	Recognising and extending 'special' sequences (Square numbers, triangular numbers, ...)	
	Recognising and extending 'other' sequences (Fibonacci, quadratic, geometric, ...)	
	Recognising and extending geometric sequences where the common ratio is a surd	
A25	Writing the nth term of a linear sequence	
	Writing the nth term of a quadratic sequence	
R1	Changing freely between standard units of:	
	length	
	mass	
	volume/capacity	

	area/volume	
	time	
	compound units (speed, density)	
R2	Using scale factors	
	Using scale diagrams and maps	
R3	Writing one amount as a fraction of another	
R4	Simplifying ratios to their lowest terms	
	Writing a ratio in the form 1 : n and n : 1	
R5	Sharing amounts in a given ratio	
	Sharing amounts in contextual problems	
R6	Comparing amounts using ratios and fractions	
R7	Using proportion as the equality of ratios	
R8	Relating ratios to fractions	
	Relating ratios to equations	
R9	Understanding the meaning of a percentage	
	Calculating percentages, and percentage changes, using a multiplier	
	Writing one amount as a percentage of another	
	Comparing amounts using percentages	
	Working with percentages greater than 100%	
	Writing change as a percentage	
	Calculating using percentages in reverse	
	Calculating using simple interest	
R10	Solving problems involving direct proportion	
	Solving problems involving inverse proportion	
R11	Working with speed, distance and time	
	Working with density, mass and volume	
	Working with pressure, force and area	
	Working with rates and the unitary method	
R12	Solving length, area and volume problems with similar shapes	
	Solve problems involving trigonometric ratios and similarity	
R13	Understanding and using direct proportion algebraically	
	Understanding and using inverse proportion algebraically	
	Constructing and interpreting equations that describe direct and inverse proportion	
R14	Understanding that the gradient of a line represents a rate of change	
	Recognising graphs that depict direct and inverse proportion	
R15	Interpreting the gradient at a point on a curve as an instantaneous rate of change	
	Applying the concepts of average and instantaneous rates of change in context	
R16	Working with repeated proportional changes using a multiplier and a power, including compound percentages	
	Working with general iterative processes	
G1	Using mathematical names and conventions with geometric figures	
G2	Using a straight edge and a pair of compasses to construct:	
	the perpendicular bisector of a line segment	
	a perpendicular to a given line from and at a given point	
	the bisector of a given angle	
	an accurate drawing of a sketch of a geometric figure	
	Using constructions to solve loci problems	

G3	Using angle facts to solve problems, including:	
	the sum of angles at a point, and on a straight line	
	vertically opposite angles	
	alternate and corresponding angles in parallel lines	
	the sum of angles in a triangle	
	the sum of angles in polygons, using the sum of angles in a triangle	
G4	Describing the properties of common quadrilaterals	
G5	Using the basic criteria for congruent triangles	
G6	Reasoning mathematically with geometric figures	
G7	Applying and describing the transformation of geometric figures using:	
	reflection	
	translation	
	rotation	
	enlargement by positive and negative, integer scale factors	
	enlargement by positive and negative, fractional scale factors	
G8	Describing the effect of a combination of transformations	
	Describing invariance in transformations	
G9	Identifying and naming the parts of a circle	
G10	Applying and proving the standard circle theorems	
G11	Solving problems using coordinates	
G12	Identifying and naming common 3D solids	
	Identifying and naming the parts of a 3D solid	
G13	Constructing plans and elevations of 3D solids	
G14	Using standard units of measure (length, area, volume/capacity, mass, time, money, etc.)	
G15	Measuring and drawing lines angles	
	Interpreting maps and scale drawings	
	Using bearings to describe direction	
G16	Knowing and applying formulae to calculate using:	
	area of triangles, parallelograms, trapezia	
	volume of cuboids	
	volume of prisms	
	volume of cylinders	
G17	Knowing and applying formulae to calculate using:	
	circumference of circles	
	area of circles	
	Calculating the area and perimeter of compound shapes, involving circles	
	Calculating the surface area and volume of spheres, pyramids, cones and composite solids, using given formulae	
G18	Calculating using the lengths of arcs and the area of sectors	
G19	Understanding the effect of transformations, applying this to congruence and similarity	
	Applying the concepts of similarity to calculate areas and volumes of similar figures	
G20	Knowing and using Pythagoras' Theorem to calculate lengths in right-angled triangles	
	Knowing and using the trigonometric ratios to calculate lengths in right-angled triangles	
	Knowing and using the trigonometric ratios to calculate angles in right-angled triangles	

	Applying Pythagoras' Theorem and the trigonometric ratios in 3D	
G21	Knowing the exact values for specific trigonometric ratios	
G22	Applying the sine rule to find unknown lengths and angles	
	Applying the cosine rule to find unknown lengths and angles	
G23	Calculating the area, sides and angles in angle triangles using ½ ab sin C	
G24	Describing translation in 2D using vectors	
G25	Calculating using 2D column vectors	
	Using vectors to construct geometric arguments and proofs	
P1	Constructing and interpreting two-way tables, frequency tables and frequency trees	
	Comparing relative frequencies to theoretical probabilities	
P2	Finding probabilities from lists and tables	
	Understanding the idea of relative frequency as an estimate of theoretical probability	
	Understanding the concept of randomness	
P3	Understanding and using the 0 – 1 probability scale	
	Estimating probabilities using relative frequency	
P4	Understanding and using the sum of the probabilities of mutually exclusive events (= 1)	
P5	Understanding the benefit of conducting a greater number of trials in an experiment	
P6	Completing tables to show outcomes of an event	
	Completing tree diagrams to show outcomes and probabilities	
	Constructing and interpreting Venn diagrams	
	Understanding and using set notation used with reference to Venn diagrams	
P7	Listing the outcomes to events in systematic ways	
	Using and interpreting two-way tables	
	Using and interpreting frequency trees	
	Calculating probabilities from tables	
P8	Calculating probabilities using the 'and' and 'or' rules	
	Understanding whether two events are 'independent' or 'dependent'	
	Using a tree diagram to calculate probabilities	
P9	Calculating conditional probabilities using two-way tables	
	Calculating conditional probabilities using tree diagrams	
	Calculating conditional probabilities using Venn diagrams	
S1	Analysing sets of data for patterns and outliers	
	Understanding the benefits and limitations of sampling	
S2	Constructing and interpreting:	
	frequency tables	
	bar charts, vertical line charts and frequency diagrams	
	pictograms	
	pie charts	
	time series graphs	
	two-way tables	
S3	cumulative frequency diagrams	
	histograms with equal class intervals	
	histograms with unequal class intervals	
S4	Calculating the mean, median, mode and range for a list of data	
	Estimating the mean, and finding the interval containing the median, of grouped data	
	Comparing distributions of data sets using box plots	
	Comparing distributions of data sets making use of quartiles and inter-quartile range	
S5	Using the mean, median, mode and range, as well as diagrams to describe sets of data	

S6	Using and interpreting scatter diagrams	
	Recognising correlation and describing relationships from scatter diagrams	
	Drawing lines of best fit and estimating unknown values	