

Foundation Tier Skills Audit

		Date	Date	Date	Date
Topic	Number				
Integers	Understand Place Value				
	Order Integers				
	Use Negative Numbers				
	Use BIDMAS for calculations				
	Understand Odd, Even, Prime numbers				
	Find Factors / Multiples of a number				
Fractions	Find an equivalent fraction				
	Simplify a fraction				
	Convert between mixed numbers and top-heavy fractions				
	Order fractions by finding a common denominator				
	Calculate a fraction of an amount				
	Express one number as a fraction of another				
	Adding and Subtracting fractions / mixed numbers				
	Converting a fraction to a percentage				
	Converting a fraction to a decimal				
	Multiplying fractions				
Decimals	Dividing a fraction by an integer				
	Dividing two fractions				
	Order decimal numbers				
Powers and Roots	Convert a decimal to a fraction				
	Convert a decimal to a percentage				
	Know and identify square numbers				
	Know and identify cube numbers				
	Use rules of indices on numbers				
Set Notation	Express a number as the product of prime factors				
	Find the HCF / LCM of two numbers				
	Use and understand set notation (AND, OR, NOT)				
	Understand the idea of an empty set and its notation				
Percentages	Understand the notation \in and \notin				
	Use Venn diagrams to represent sets				
	Express one number as a percentage of another				
	Convert a percentage to a decimal				
	Convert a percentage to a fraction				
	Find a percentage of an amount				
	Perform a percentage increase or decrease using multipliers				
	Solve reverse percentage problems				
	Solve compound interest type problems				
Ratio	Simplify a ratio				
	Divide an amount into a given ratio				
	Solve problems involving proportion eg. scaling up recipes				
	Understand and use scale maps				
Rounding	Round to the nearest.....				
	Round to any decimal places				
	Round to any significant figures				
	Identify upper and lower bounds of numbers that have been rounded				
	Use estimation to approximate a calculation				
Standard Form	Express a number in standard form				
	Convert a number in standard form to a regular number				
	Perform calculations in standard form				
	Order numbers in standard form				

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Topic	Algebra				
Manipulation	Collect like terms				
	Multiply two or more algebraic terms				
	Expand a single bracket				
	Expand and simplify the sum of two single brackets				
	Factorise algebraic expressions fully				
	Expand and simplify double brackets				
	Factorise a simple quadratic expression into brackets				
Indices	Understand index notation				
	Understand a power of 0 = 1				
	Understand how to write a negative power as a fraction				
	Use the laws of indices to simplify algebraic expressions				
Formulae	Substitute values into a formula				
	Create a formula from a worded problem				
	Change the subject of a simple formula				
Equations	Solve linear equations where unknowns are on both sides				
	Solve linear equations involving brackets				
	Solve linear equations involving fractions				
	Create and solve a linear equation for a shape problem				
	Solve Simultaneous Linear Equations				
	Solve Quadratic equations by factorising				
Inequalities	Understand the symbols (<, >, \leq , \geq)				
	Drawing inequalities on a number line using shaded / unshaded dots				
	Solve Linear inequalities				
	Draw inequalities on a graph				
	Identify regions on a graph described by inequalities				

Topic	Sequences and Graphs				
Sequences	Find the next term in a simple sequence				
	Find the nth term of a linear sequence				
	Determine whether a number is in a sequence or not				
Graphs	Plot & read off coordinate points				
	Find the midpoint of two coordinate points				
	Draw and use conversion graphs				
	Find the gradient of a straight line				
	Find the gradient connecting two points				
	Drawing a line from a given equation				
	Identifying the equation of a vertical / horizontal line				
	Identifying the equation of a diagonal line in the form $y = mx + c$				
	Plotting quadratic graphs using a table of values				
	Interpret real life graphs including distance/time, speed/time				

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Topic	Geometry				
Angles / Triangles	Understand acute / obtuse / right / reflex angles				
	Understand vertically opposite angles are equal				
	Understand angles on a straight line add to 180				
	Understand angles around a point add to 360				
	Recognise angles in parallel lines (alternate and corresponding)				
	Understand angles in a triangle add to 180				
Polygons	Recognise isosceles and equilateral triangles				
	Recognise all the standard quadrilaterals				
	Understand angles in a quadrilateral add to 360				
	Understand the properties of a square, rectangle, parallelogram, rhombus, kite and trapezium				
	Understand the term regular polygon				
	Find the exterior and interior angles of a regular polygon				
Symmetry	Know the angle sum for interior angles for any polygon				
	Recognise congruent shapes				
	Identify lines of symmetry of shapes				
	Identify order of rotational symmetry of shapes				
Measures	Calculate time intervals using 12 and 24hr clock				
	Measure an angle using a protractor				
	Understand three figure bearings				
	Understand and use standard measures for length, area, volume, capacity and mass				
	Calculate measures such as speed and density				
Construction	Measure and draw lines to nearest mm				
	Construct a triangle using compasses				
	Construct a perpendicular bisector				
	Construct an angle bisector				
Circles	Recognise all the parts of a circle				
	Understand a radius and a tangent meet at 90 degrees				
	Understand two tangents from a point to a circle are equal in length				
Trig & Pythag	Find the length of the hypotenuse using Pythagoras				
	Find the length of a shorter side using Pythagoras				
	Find the length of a side using Trigonometry				
	Find an angle in a triangle using Trigonometry				
2D Shapes	Convert units of area - students always find this hard!!				
	Find perimeter of a 2D shape				
	Find the area of a shape made from triangles / rectangles				
	Find the area of a parallelogram				
	Find the area of a trapezium				
	Find the Circumference of a circle				
	Find the Area of a circle				
	Find the Area / perimeter of a semi-circle				
3D Shapes	Recognise names of 3D solids				
	Understand faces, vertices, edges of a 3D solid				
	Find the surface area of a 3D shape including a cylinder				
	Find the volume of a prism, including a cylinder				
	Convert units of volume - students always find this hard!!				
Similarity	Calculate the scale factor to find lengths in similar shapes				
	Understand angles remain the same in similar shapes				
Transformations	Describe / Perform a Rotation of a shape				
	Describe / Perform a Reflection of a shape				
	Describe / Perform a Translation of a shape using a vector				
	Describe / Perform an Enlargement of a shape				

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Topic	Statistics and Probability				
Graphs and Charts	Draw and Interpret Pictograms				
	Draw and Interpret Bar Charts				
	Draw and Interpret Pie Charts				
Averages	Calculate the mean, median, mode and range from a list of data				
	Identify the modal class for grouped data				
	Calculate the class where the median lies for grouped data				
	Calculate an estimate for the mean of grouped data				
	Understand that if you know the mean of a given number of values, you also know the total				
Probability	Understand and use the probability scale				
	Find probabilities from a Venn diagram				
	Understand and construct a sample space diagram to answer probability questions				
	List all the possible outcomes of two events in a systematic way				
	Find the probability of an event not happening				
	Find an estimate for the number of times an event will happen using probability				

Higher Tier Skills Audit

Please ensure you complete the Foundation audit as well, since the first 10 or so questions on Higher will also be on the Foundation paper

Topic	Number	Date	Date	Date	Date
Decimals	Convert a recurring decimal into a fraction				
	Convert a number with both non-recurring and recurring digits into a fraction				
Powers and Roots	Simplify surds				
	Adding and subtracting surds by simplifying				
	Multiplying surds including expanding brackets				
	Rationalising the denominator with one term in denominator				
	Rationalising the denominator with two terms in denominator				
	Understand and use fraction powers				
	Understand and use negative powers (including negative fractions)				
Set Notation	Understand the notation $n(A)$ and $A \subset B$				
	Use Venn diagrams to show the numbers in up to 3 sets				
Rounding	Solve bounds problems involving addition, subtraction, multiplication and division				

Topic	Algebra				
Manipulation	Expanding and simplifying three brackets				
	Factorise quadratic expressions with any coefficient of x squared				
	Simplify algebraic fractions by factorising				
	Adding / Subtracting algebraic fractions				
	Complete the Square for a quadratic expression with coefficient of x squared equal to 1				
	Complete the Square for a quadratic expression with any coefficient of x squared				
	Read off the turning point of a quadratic by completing the square				
	Use algebra to construct proofs				
Formulae	Change the subject of a formula where the subject appears more than once				
Proportion	Set up and solve equations showing (direct) proportion				
	Set up and solve equations showing inverse (indirect) proportion				
Quadratic Equations	Solve quadratics using factorising				
	Solve quadratics using the quadratic formula				
	Solve quadratics by completing the square				
	Solve simultaneous equations with one linear and one quadratic				
Inequalities	Solve quadratic inequalities				
	Shade a region on a graph defined by several linear inequalities				

Topic	Sequences, Functions and Graphs				
Sequences	Use nth term formula: $U_n = a + (n-1)d$				
	Use the sum of a series formula provided				
Functions	Use and understand function notation				
	Find, for example, $f(3)$				
	Understand terms domain and range				
	Know when values must be excluded from the domain (usually involving division or square roots)				
	Find a composite function				
	Find an inverse function				
	Find an inverse function of part of a quadratic using completing the square				
Graphs	Recognise and plot positive and negative cubic graphs				
	Recognise and plot positive and negative reciprocal graphs				
	Recognise and draw graphs of $\sin x$, $\cos x$ and $\tan x$				
	Apply transformations $f(x+a)$, $f(x)+a$, $af(x)$ and $f(ax)$ to any graph				
	Apply transformations $f(x+a)$, $f(x)+a$, $af(x)$ and $f(ax)$ to any equation of a function to find its transformed equation				
	Estimate the gradient of a curve by drawing a tangent				
	Find the equation of a line passing through a point, parallel to a given line				
	Find the equation of a line passing through a point, perpendicular to a given line				
Calculus	Differentiate integer powers of x, including negatives				
	Find the gradient of a curve at a specific point				
	Find the turning points (stationary points) of a curve using calculus				
	Distinguishing between a Maximum / Minimum point				
	Apply calculus to kinematics problems involving displacement, velocity, acceleration				

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Topic	Geometry and Trigonometry				
Circles	Knowledge and use of all circle theorems				
Trigonometry	Calculate angles of elevation and depression using SOHCAHTOA				
	Knowing when to use the sine or cosine rule				
	Using the sine rule to calculate a missing side in a non-right angled triangle				
	Using the sine rule to calculate a missing angle in a non-right angled triangle				
	Using the cosine rule to calculate a missing side in a non-right angled triangle				
	Using the cosine rule to calculate a missing angle in a non-right angled triangle				
	Finding the area of a triangle using $\frac{1}{2}ab\sin C$				
	Using Pythagoras and SOHCAHTOA in 3D to find side lengths and angle between a line and a plane				
Circular Shapes	Find the area of a sector				
	Find the arc length / perimeter of a sector				
	Find the volume of a sphere / hemisphere / cone				
	Find the surface area of a sphere / hemisphere / cone				
Similarity	Use length scale factor to calculate Area and Volume scale factors				
	Find missing lengths / areas / volumes using relevant scale factors				
Vectors	Add and subtract column vectors				
	Multiply vectors by a number				
	Find a vector route using a diagram				
	Solve vector problems involving midpoint and ratios				
	Proving that vectors are parallel / three points are collinear				
	Solving simultaneous equations in vector problems				

Topic	Statistics and Probability				
Graphs and Charts	Construct and interpret Cumulative Frequency Diagrams from Data				
	Construct and interpret Histograms				
Statistical Measures	Estimate the Median from a Cumulative Frequency Diagram				
	Calculate the Interquartile range from a list of data				
	Estimate the Interquartile range from a cumulative frequency diagram				
	Make comparisons between two sets of data using averages and measures of spread				
Probability	Draw and use tree diagrams				
	Calculate the probability of two or more independent events occurring				
	Solving dependent probability problems (without replacement)				
	Solve tree diagram problems involving algebraic probabilities				