

Y11 Foundation SOW

HT1 - Revision					
Chapters	Learning Objectives:	Grade	R	A	G
Approximations	• multiply and divide with decimals.	3			
	• round a whole number.	2			
	• round decimal numbers to a given accuracy.	2			
	• identify significant figures	2			
	• round numbers to a given number of significant figures	3			
	• use approximation to estimate answers and check calculations including money problems	4			
	• use inequality notation to specify simple error intervals due to truncation or rounding				
	• apply and interpret limits of accuracy including upper and lower bound				
Fractions	• work out a fraction of a quantity (including money problems)	3			
	• find one quantity as a fraction of another.	3			
	• add and subtract fractions with different denominators including mixed numbers	4			
	• multiply / divide fractions including mixed numbers	4			
	• use a calculator to multiply / divide fractions including mixed numbers	4			
FDP and recurring decimals	Recognise terminating decimals and recurring decimals.	5			
	Convert between decimals / percentages / fractions	3			
	Find reciprocals of numbers or fractions.	5			
LCM, HCF and prime numbers	• find and recognise multiples / factors of numbers	2			
	• identify prime numbers and prime factors	3			
	• identify LCM / HCF of two numbers venn diagrams and listing) including real life problems e.g bus times	4			
Surds	• identify square numbers and use a calculator to find the square / square root of a number.	2			
	How to estimate powers and roots of any given positive number.	4			
	Simplify and manipulate simple surds (cube / square roots)	5			
Algebra: Expressions and equations	• write an algebraic expression including writing the total cost as an expression	4			
	• expand and simplify brackets such as $2(5x + 3) - 6(x - 5)$	4			
	• factorise an algebraic expression.	4			
	• expand two linear brackets to obtain a quadratic expression.	4			
	• factorise a quadratic expression of the form $x^2 + bx + c$ into two linear brackets.	5			
	• Solve a quadratic expression of the form $x^2 + bx + c$ by factorising	5			
• find approximate solutions using a graph					
AP1					

HT2 - Revision					
Chapters	Learning Objectives:	Grade	R	A	G
Linear graphs	• work out the equations of horizontal and vertical lines.	3			
	• To recognise and draw the graph of a linear equation using table of values / using a calculator	5			
	• work out the gradient of a straight line (interpret the gradient as the speed in distance time graphs)	5			
	• To identify and interpret the gradient / y-intercept from a linear equation	4			
	• To draw linear graphs using the gradient and the y-intercept	5			
	• work out the equation of a line given two points on the line.	5			
	• work out the equation of a linear graph that is parallel to another line	5			
Vectors	• apply addition and subtraction of vectors, multiplication of vectors by a scalar, and diagrammatic and column representations of vectors (relate to weather)	5			
Angles	• recognise and calculate the angles in different sorts of triangle.	3			
	• calculate the sum of the interior angles in a polygon (tiling problems)	5			
	• calculate the exterior angles and the interior angles of a regular polygon.	5			
	• calculate angles in parallel lines.	4			
	• use angle properties in quadrilaterals.	3			
Linear Equations / Inequalities	• use a bearing to specify a direction.	3			
	Solve two step equations	4			
	Solve equations where the variable appears on both sides of the equals sign.	4			
	Set up equations from given information and then solve them.	5			
	• find approximate solutions using a graph				
	• use a number line to represent negative numbers	2			
	• compare and order positive and negative numbers.	2			
Simultaneous Equations	• Solve a simple linear inequality and represent it on a number line.	4			
	Change the subject of a simple formula.	5			
	• solve simultaneous linear equations using the elimination or the substitution method / graphical method	5			
	• solve problems using simultaneous linear equations.	5			
AP2					

HT3 - Revision					
Chapters	Learning Objectives:	Grade	R	A	G
Powers and standard form	• write a number as a power of another number	3			
	• use rules for multiplying and dividing powers	4			
	• multiply and divide numbers by powers of 10.	4			
	• write a number in standard form including writing mass of atoms, distance between planets	4			
	• comparing numbers in standard form.	5			
	• To multiply and divide numbers in standard form	5			
Perimeter, area and volume	• Estimate powers and roots of any given positive number.	4			
	• calculate the perimeter and area of a compound shapes	3			
	• calculate the area of a triangle/ parallelogram / trapezium	3/4			
	• calculate the circumference of a circle (fencing problems)	4			
	• calculate the area of a circle (cost of a circular items)	4			
	• calculate the surface area and volume of a cuboid. (the cost of wrapping paper)	4			
	• calculate the volume and surface area of a prism.	5			
	• calculate the volume and surface area of a cylinder.	5			
Sequences	• calculate the length of an arc	5			
	• calculate the area and angle of a sector.	5			
	• recognise patterns in number sequences.	2			
	• generate sequences, given the n th term.	3			
	• find the n th term of a linear sequence.	4			
	• recognise and continue some special number sequences	3			
	• understand how prime, odd and even numbers interact in addition, subtraction and multiplication problems.	3			
• recognise and use sequences of triangular, square and cube numbers, simple arithmetic progressions, Fibonacci type sequences, quadratic sequences					
• recognise simple geometric progressions					
AP3					

HT4 - Revision					
Chapters	Learning Objectives:	Grade	R	A	G
	• simplify a ratio	3			
	• express a ratio as a fraction	3			
	• divide amounts into given ratios	4			

Ratio and proportion	• solve problems involving ratios.	5			
	• <u>convert between currencies and measures.</u>	4			
	• use compound units such as speed, rates of pay, unit pricing, density and pressure	5			
	• use the unitary method to find which product is better value.	3			
	• solve problems involving direct and inverse proportion, including graphical and algebraic representations and decorating problems	5			
Probability	• interpret the gradient of a straight line graph as a rate of change				
	• use the probability scale and the language of probability	3			
	• calculate the probability of an outcome of an event.	3			
	• calculate the probability of an outcome not happening when you know the probability of that outcome happening.	4			
	• recognise mutually exclusive and exhaustive outcomes.	4			
	• calculate experimental probabilities and relative frequencies from experiments	3			
	• predict the likely number of successful outcomes, given the number of trials and the probability of any one outcome.	4			
Probability: Combined events	• apply systematic listing and counting strategies to identify all outcomes for a variety of problems.	4			
	• work out the probabilities when two or more events occur at the same time.	4			
	• read two-way tables and use them to work out probabilities.	4			
	• use Venn diagrams to solve simple probability questions.	5			
	• understand frequency tree diagrams and probability tree diagrams	4			
• use probability tree diagrams to work out the probabilities involved in combined events.	5				
AP4					
HT5 - GCSE Preparation / Practice Papers					

HT3 to HT5 - Revision using year 10 foundation SOW and past papers

staff are expected to conduct end of chapter tests

Underlined objectives are extensions for more able groups

Money
Real Life

Y11 Higher SOW

HT1					
Chapters	Learning Objectives	Grade	R	A	G
Quadratic equation	Solve quadratic inequalities	8-9			
	Understand the relationship between translating a graph and the change in its function notation	7			
	Understand the effect of stretching a curve parallel to one of the axes has on its function form	7			
	Understand the effect of reflecting a curve in one of the axes has on its function form	7			
Trigonometric functions	Know the exact values of \sin and \cos for $0^\circ, 30^\circ, 45^\circ, 60^\circ$ and 90° ; know the exact values of \tan for $0^\circ, 30^\circ, 45^\circ$ and 60°	5			
	Draw the graph of the sine / cosine / tangent functions	7			
	Use the graphs of the sine / cosine / tangent functions to solve equations	8-9			
	Write and use equations to solve problems involving direct proportion, including problems involving square and cubic proportionality	7			
Revisions: Direct / Inverse proportion	Write and use equations to solve problems involving inverse proportion including problems involving square, cubic proportionality and money	7			
	Use and recognise graphs showing direct / inverse proportion	5			
Rate of change	Draw a tangent at a point on a curve and use it to work out the gradient at a point on a curve	7			
Simultaneous equations (one non-linear)	Interpret the gradient at a point on a curve	8-9			
Geometry: Progression	Draw a pair of simultaneous equations where one is linear and one is non-linear, graphically and algebraically including equations of circles	8-9			
HT2					

HT2 - Revision					
Chapters	Learning Objectives	Grade	R	A	G
Cumulative frequency and box plots	Draw and interpret cumulative frequency graphs	5			
	Draw and interpret cumulative frequency graphs	6			
	Draw and interpret box plots	6			
	Draw and interpret box plots where the bars are of equal width	6			
Histograms	Draw and interpret histograms where the bars are of unequal width	7			
	Calculate the median, quartiles and interquartile range from a histogram	7			
Negative / Fractional Indices	Apply the rules of powers to negative indices	5			
Recurring decimals	Convert a fraction to a recurring decimal	5			
	Recognise rational numbers, terminating decimals and recurring decimals	5			
	Find reciprocals of numbers or fractions	5			
Surd	Convert between fractions and recurring decimals	7			
	Use a rational power and roots of any given positive number	7			
	Work with surds	8			
	Estimate the discriminant	9			

HT3 - Revision					
Chapters	Learning Objectives	Grade	R	A	G
Vector geometry	Calculate the resultant of two vectors	8			
	Use the resolution of two vectors to solve vector problems (vector to be written)	8			
Circle theorems	Apply circle theorems for similar geometrical proofs	7			
	Solve problems involving chords and radii	7			
	Draw tangents to a circle from an external point	7			
	Understand and use facts about angles subtended at the centre and the circumference of circles	7			
	Understand and use facts about the angle in a semicircle being a right angle	7			
	Understand and use facts about angles subtended at the circumference of a circle	7			
Linear graphs	Understand and use facts about cyclic quadrilaterals	7			
	Understand and use alternate segment theorems	7			
	Draw circle theorems	6-7			
	Work out the equation of a line given that it is parallel to another line and passes through a specific point	6			
Inequalities and regions	Work out the equation of a perpendicular line	7			
	Find the equation of a line perpendicular to a given line	7			
	Solve a simple linear inequality and represent it on a number line	4			
	Find regions that satisfy more than one quadratic inequality	7			

HT4 - Revision					
Chapters	Learning Objectives	Grade	R	A	G
Factorising and solving quadratics	Factorise a quadratic expression of the form $x^2 + bx + c$ into two linear brackets	5			
	Factorise a quadratic expression of the form $ax^2 + bx + c$ into two linear brackets ($a \neq 1$)	6			
	Solve quadratic equations by factorisation	6			
	Recognise a quadratic equation that it can be factorised	6			
	Solve quadratic equations using the formula	7			
	Draw a quadratic equation by completing the square	8-9			
Solving quadratic equations using completing the square / Quadratic formula	Identify the significant points of a quadratic function graphically	7			
	Identify the roots of a quadratic function by using a quadratic equation	8-9			
	Identify the turning point of a quadratic function by using symmetry or completing the square	8-9			
	Convert algebraic fractions	7			
Iteration	Solve equations involving algebraic fractions	8-9			
	Use approximation methods for solving using the process of iteration / problems	8-9			
Probability	Work out the probability of different outcomes of combined events	5			
	Work out the probability of two outcomes or events occurring at the same time	5			
	Use tree diagrams to work out the probability of combined events	5			
	Use the connectors "and" and "or" to work out the probabilities for combined events	5			
	Work out the probability of combined events when the probabilities change after each event	6			
	Use Venn diagrams to solve probability questions	6			
	Work out the number of choices, arrangements or outcomes when choosing from lists or sets	6			

HT5 - GCSE Preparation / Practice Papers

HT2 to HT5 - Revision using year 10 Higher SOW and past papers

Staff are expected to conduct, and of chapter tests / Mini tests

HT5

HT5