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**Knowledge Rich Curriculum Plan**

Year 11 Higher – Algebra 1



| **Lesson/Learning Sequence**  | **Intended Knowledge:***Students will know that…* | **Tiered Vocabulary**  | **Prior Knowledge:***In order to know this students, need to already know that…* | **Assessment**  |
| --- | --- | --- | --- | --- |
| **To learn how to expand and simplify brackets** | * Students will know how to expand and simplify an expression in the form (x ± a)(x ± b) ± (x ± c)(x ± d) including where brackets are squared
* Students will know how to expand three brackets and simplify their answers including where brackets are squared or cubed
* Students will know how to form expressions by expanding brackets
 | **Algebraic Expression –** A collection of variables and/or integers without an equals sign. It cannot be solved.**Expand –** in maths, expand means multiply out | * Students should already know how to expand single and double brackets
 | Exam Prep 2 |
| **To learn how to factorise quadratics where the co-efficient of x2 is greater than 1** | * Students will know how to factorise quadratics in the form ax2 + bx + c where b and c are either positive or negative and a > 1
* Students will know how to factorise the difference of two squares where the coefficient of x2 is greater than 1
 | **Factorise –** put back into brackets by bringing common factors outside**Quadratic –** involving a squared algebraic term but no other power higher than 2**Co-efficient –** a number placed before and multiplying the variable in an algebraic expression | * Students need to know how to factorise into single brackets
* Students will know how to factorise quadratics in the form ax2 + bx + c where b and c are either positive or negative and a = 1
 | Exam Prep 2 |
| **To learn how to solve linear equations** | * Students will know how to solve linear equations involving fractions
* Students will know how to solve linear equations involving unknowns on both sides
 | **Solve –** find an answer **Equation –** A mathematical statement that two amounts, or groups of symbols representing an amount, are equal: Example  3x - 3 = 15**Linear Equation –** an equation between two variables that can be written in the form y=mx+c. Linear equations give a straight line when plotted on a graph.**Inverse –** opposite | * Students should know how to solve linear equations in the form ax + b = c
* Students should know how to solve linear equations in the form a(bx + c) = d
 | Exam Prep 2 |
| **To learn how to solve linear equations with unknowns on both sides** | * Students will know how to solve linear equations involving unknowns on both sides
* Students will know how to solve linear equations with unknowns on both sides including where there are fractions and brackets
 |  | * Students will need to know how to expand brackets
* Students will need to know how to solve linear equations involving fractions
 | Exam Prep 2 |
| **To learn how to form and solve linear equations** | * Students will know how to form and solve linear equations for a worded scenario
* Students will know how to form and solve linear equations involving shape
 |  | * Students will need to know how to calculate perimeter and area
* Students will need to know the basic angle facts
* Students will need to know the properties of special triangles
 | Exam Prep 2 |
| **To learn how to represent, interpret and solve linear inequalities** | * Students will know how to represent inequalities on a number line
* Students will know how to write the inequality represented on a number line
* Students will know how to solve linear inequalities
 | **Inequality –** a symbol which makes a non-equal comparison between two numbers or other mathematical expressions e.g. >, <, > and < | * Students will need to know how to solve linear equations
* Students should already know how to list integers that satisfy an inequality
 | Exam Prep 2 |
| **To learn how to rearrange formulae**  | * Students will know how to rearrange formulae involving fractions, powers and roots
* Students will know how to rearrange formulae involving brackets
* Students will know how to rearrange formulae where factorisation is required to isolate the variable we are trying to make the subject
 | **Rearrange –** change the position of.**Formula –** A mathematical relationship or rule expressed in symbols. Example A=πr2 | * Students will need to know how to factorise
* Students should already know how to rearrange very simple formulae
 | Exam Prep 2 |
| **To learn how to simplify algebraic fractions** | * Students will know how to simplify algebraic fractions
 |  | * Students will need to know how to factorise into single brackets
* Students will need to know how to factorise into double brackets
 | Exam Prep 2 |
| **To learn how to add and subtract algebraic fractions** | * Students will know how to add and subtract algebraic fractions where the denominator is numerical
* Students will know how to add and subtract algebraic fractions where the denominator is algebraic
* Students will know how to solve equations involving the addition and subtraction of algebraic fractions but only where the denominator is numerical
 | **Denominator –** the bottom number in a fraction**Numerator –** the top number in a fraction | * Students will need to know how to add and subtract fractions
* Students will need to know how to expand brackets
 | Exam Prep 2 |
| **To learn how to multiply and divide algebraic fractions** | * Students will know how to multiply and divide algebraic fractions and will understand why factorisation and cross-cancelling is the easiest method for this
 |  | * Students will need to know how to multiply and divide fractions
* Students will need to know how to factorise into single and double brackets
 | Exam Prep 2 |