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**Knowledge Rich Curriculum Plan**

Year 10 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** |
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| **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  **Co-efficient –** a number placed before and multiplying the variable in an algebraic expression | * Students should already know how to expand single and double brackets | Exam Prep 2 |
| **To learn how to expand double and triple brackets** | * Students will know how to square a linear expression eg (x+1)^2. * Students will know how to expand double brackets and simplify answers by collecting 'like terms'. * Students will know how to expand three brackets and simplify answers by collecting 'like' terms. |  | * Students should know how to expand a single bracket |  |
| **To learn how to factorise into single and double brackets** | * Students will know how to factorise algebraic expressions 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 * Students will know how to factorise the difference of two squares where the coefficient of x2 is 1 | **Factorise –** put back into brackets by bringing common factors outside  **Quadratic –** involving a squared algebraic term but no other power higher than 2 | * Students need to know how to find the HCF | 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 | **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 2 step equations * Students will need to know how to solve equations involving brackets. | **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 will need to know how to solve 1 step equations. * Students will need to know their inverse operations | 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 brackets | 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 |