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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…* | **Assessment**  |
| --- | --- | --- | --- | --- |
| **To learn how to simplify and form algebraic expressions**  | * Students will know how to simplify algebraic expressions involving multiplication, including where the index laws need to be applied
* Students will know how to simplify algebraic expressions involving division, including where the index laws need to be applied.
* Students will know how to simplify more complex algebraic expressions involving both multiplication and division
* Students will know how to simplify algebraic expressions where the index law for brackets is required e.g. Simplify (2x2)3
* Students will know how to form algebraic expressions involving collecting like terms and multiplication and division of algebraic terms
 | **Algebraic Expression –** A collection of variables and/or integers without an equals sign. It cannot be solved.**Co-efficient –** a number placed before and multiplying the variable in an algebraic expression | * Students should already know how to collect like terms
* Students should already know how to apply the index laws for multiplication, division and brackets
* Students should already know how to expand single brackets
 | Exam Prep 2 |
| **To learn how to expand brackets** | * Students will know how to expand multiple single brackets and simplify their answers
* Students will know how to form expressions involving expanding single brackets
* Students will know how to expand and simplify double brackets
* Students will know how to form expressions involving expanding double brackets
 | **Expand –** in maths, expand means multiply out | * Students should already know how to expand single brackets
* Students should already know how to expand and simplify multiple single brackets that are both added together and subtracted
 | Exam Prep 2 |
| **To learn how to expand brackets** | * Students will know how to expand and simplify multiple pairs of double brackets
* Students will know how to expand three brackets
* Students will know how to form expressions involving expanding multiple pairs of double brackets and triple brackets.
 |  | * Students should already know how to expand double brackets
* Students should already know how to expand and simplify single brackets
 | Exam Prep 2 |
| **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 of two numbers
 | 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
 | **Co-efficient –** a number placed before and multiplying the variable in an algebraic expression | * Students should already 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 and brackets.
* 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 know how to solve equations where there is an algebraic fraction on either side of the equals sign (only where the numerator or denominator is a single integer)
 | **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 already know how to solve simple two step linear equations with one unknown e.g. 2x+3 =15 including where the answer is a fraction/decimal
 | 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 need to know how to form expressions
* Students will need to know how to solve linear equations
 | Exam Prep 2 |
| **To learn how to form and solve linear equations** | * 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 including where the inequality needs solving first
* Students will know how to write the inequality represented on a number line
* Students will know how to solve linear inequalities including those involving brackets, fractions and unknowns on both sides
* Students will know how to solve linear inequalities in the form a < bx + c < d etc.
 | **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 kinematics formulae and other formulae used in real life
* 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 simple formulae
 | Exam Prep 2 |