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**Knowledge Rich Curriculum Plan**

Year 10 Intermediate – 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 simplify algebraic expressions** | * Students will know how to collect like terms * 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 algebraic expressions where the index law for brackets is required e.g. Simplify (2x2)3 | **Algebraic Expression –** A collection of variables and/or integers without an equals sign. It cannot be solved.  **Simplify –** make (something) simpler or easier to do or understand.  **Co-efficient –** a number placed before and multiplying the variable in an algebraic expression | * Students should be able to simplify numerical expressions using the index laws * Students should be able to add and subtract negative numbers * Students should be able to square and cube numbers |  |
| **To learn how to expand single brackets** | * Students will know how to expand single brackets by multiplying a single term over a bracket. * Students will know how to expand multiple single brackets and simplify the answer by collecting 'like terms'.   **Opportunity for Challenge:**   * Students will know how to expand and simplify double brackets | **Expand –** in maths, expand means multiply out | * Students will need to know how to multiply algebraic expressions * Students will need to know how to collect like terms * Students will need to know how to calculate with negative numbers |  |
| **To learn how to expand double brackets** | * Students will know how to expand double brackets and simplify answers by collecting 'like terms'.   **Opportunity for Challenge:**   * Students will know how to expand three brackets |  | * Students will need to know how to expand single brackets * Students will need to know how to calculate with negative numbers |  |
| **To learn how to expand triple brackets** | * Students will know how to expand three brackets and simplify answers by collecting 'like' terms. |  |  |  |
| **To learn how to factorise expressions into a single bracket** | * Students will know how to factorise algebraic expressions into single brackets | **Factorise –** put back into brackets by bringing common factors outside  **Highest Common Factor** – the largest number that both or all of the numbers can be divided by | * Students need to know how to find the HCF of two numbers |  |
| **To learn how to factorise quadratics into double 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 | **Quadratic –** involving a squared algebraic term but no other power higher than 2 | * Students need to know how to expand double brackets * Students need to know how to calculate with negative numbers |  |
| **To learn how to substitute into formulae** | * Students will know how to substitute positive and negative integers into formulae. * Students will know how to substitute positive and negative numbers into worded formulae. * Students will know how to substitute positive and negative numbers into kinematics formulae. | **Substitution**: the action of replacing someone or something with another person or thing. In algebra “substitution" means putting numbers where the letters are in an algebraic expression | * Students need to be able to calculate with negative numbers * Students need to able to use BIDMAS |  |