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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**  |
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| **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
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| **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
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| **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
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| **To learn how to expand triple brackets** | * Students will know how to expand three brackets and simplify answers by collecting 'like' terms.
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| **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
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| **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
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| **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
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