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**Knowledge Rich Curriculum Plan**

Year 10 Foundation – Algebra 1



| **Lesson/Learning Sequence**  | **Intended Knowledge:***Students will know that…* | **Tiered Vocabulary**  | **Prior Knowledge:***In order to know this…* | **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
 | **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 add and subtract negative numbers
* Students should be able to use the index laws for multiplication with numerical bases
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| **To learn how to simplify algebraic expressions** | * 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
* Students will know how to simplify more complex algebraic expressions using the index laws
 |  | * Students need to be able to multiply algebraic expressions and use the index laws for multiplication
* Students should be able to use the index laws for division with numerical bases
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| **To learn how to expand single brackets**  | * Students will know how to expand single brackets where they need to multiply the bracket by a positive or negative integer, by an algebraic expression or by a combination of both
* Students will know how to apply the index laws when expanding brackets
* Students will know how to expand and simplify expressions in the form a(x + b) + c(x + d) including where there are powers of x, algebraic terms outside the brackets and the rules of negatives need to be applied
 | **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'.
 |  | * 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 form algebraic expressions** | * Students will know how to form expressions representing a worded situation.
* Students will know how to form expressions to represent area and perimeter.
 | **Perimeter –** the distance around the outside of a shape**Area –** the amount of space inside a 2D shape | * Students will need to know how to calculate perimeter and area
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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 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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