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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 |  |
| **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 |  |
| **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 |  |
| **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 |  |
| **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 |  |
| **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 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 |  |