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**Knowledge Rich Curriculum Plan**

Year 11 Foundation – 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 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'.
 | **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 expand single brackets
* Students will need to know how to calculate with negative numbers
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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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| **To learn how to solve linear equations** | * Students will know how to solve simple two step linear equations with one unknown using the balancing method e.g. 2x+3 =15.
* Students will be able to solve linear equations involving fractions and brackets.
 | **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. | * Students should already know how to solve one-step equations
* Students will need to know how to expand single brackets
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| **To learn how to solve linear equations with unknowns on both sides** | * Students will know how to solve linear equations with unknowns on both sides.
 |  | * Students will need to know how to solve two step linear equations with one unknown e.g. 2x+3 =15.
* Students will be able to solve linear equations involving brackets.
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| **To learn how to form and solve linear equations** | * Students will know how to set up and solve equations for a word problem.
* Students will know how to solve shape problems by forming equations
 |  | * Students will need to know how to solve linear equations
* Students should know how to form expressions.
* Students will need to know how to calculate perimeter and area
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| **To learn how to interpret inequalities and represent them on number lines** | * Students will know that an inequality is a symbol >, ≤, <, ≥ that can be used to compare two values.
* Students will know how to use the inequality symbols correctly
* Students will know that > means greater than, ≤ means less than or equal to, < means less than and ≥ means greater than or equal to
* Students will know how to list integers that satisfy an inequality e.g. -2< x <3.
* Students will know how to represent inequalities on number lines.
* Students will know how to write linear inequalities to represent a set shown on a number line.
 | **Integer –** whole number**Inequality –** a symbol which makes a non-equal comparison between two numbers or other mathematical expressions e.g. >, <, > and <**Satisfies –** meet the expectations, needs, or desires of | * Students should be able to use the four operations with positive and negative integers.
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| **To learn how to solve linear inequalities** | * Students will know the solution set is the set of values that satisfy a given set of equations or inequalities.
* Students will know how to solve simple linear inequalities in one variable, and represent the solution set on a number line.
* Students will solve an inequality such as –3 < 2x + 1 <7 and show the solution set on a number line.
* Students will know how to solve two inequalities in x, find the solution sets and compare them to see which value of x satisfies both.
 | **Solve –** find an answer | * Students will know how to list integers that satisfy inequality e.g. -2< x <3.
* Students will know how to represent inequalities on number lines.
* Students will know how to construct inequalities to represent a set shown on a number line.
* Students know how to solve one and two step equations.
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| **To learn how to rearrange formulae** | * Students will know how to rearrange simple formulae to change the subject.
* Students will know how to rearrange kinematic formulae.
* Students will know that rearrange means change the position of.
* Students will know how to change the subject of a more complicated formula involving powers and roots.
* Students will know that Kinematics concerns the motion of objects,
 | **Rearrange –** change the position of.**Formula –** A mathematical relationship or rule expressed in symbols. Example A=πr2 | * Students should have the ability to use negative numbers with the four operations and recall and use hierarchy of operations and understand inverse operations
* Students should know how to expand brackets.
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