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**Knowledge Rich Curriculum Plan**

Year 10 Foundation – Algebra 2 – Equations and Inequalities



| **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 solve problems involving function machines** | * Students will learn how to use function machines to do one and two step calculations including inverse operations. * Students will know that inverse operations are the opposite of each-other, they will know that the inverse of addition is subtraction, the inverse of multiplication is division, the inverse of squaring is square rooting and vice versa etc. * Students will know that functions are a relation or expression involving one or more variables. | **Inverse –** opposite | * Students should know how to use the four operations with positive and negative integers. |  |
| **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 |  |
| **To learn how to solve linear equations involving brackets and fractions.** | * Students will know how to calculate with fractions. * Students will know how to expand single brackets by multiplying a single term over a bracket. * Students will know how to solve an equation that involved expanding one or more brackets. * Students will know how to solve an equation that involves fractional unknowns.   Extension  Solve with unknowns on both sides |  | * Students will need to know how to solve basic 1 step linear equations * Students will need to know how to solve 2 step equations. |  |
| **To learn how to form and solve equations from worded scenarios** | * Students will know how to set up and solve equations for a word problem. |  | * Students will need to know how to solve linear equations * Students should know how to form expressions. |  |
| **To learn how to form and solve linear equations from shape problems.** | * 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 |  |
| **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. |  |
| **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. |  |
| **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. |  |