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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.
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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 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.

ExtensionSolve 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.
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| **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.
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| **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
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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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