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**Knowledge Rich Curriculum Plan**

Year 10 Higher – Algebra 2



| **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 find and use the nth term for linear sequences** | * Students will know how to generate a sequence from its nth term * Students will know how to find the nth term for a linear sequence * Students will know how to use the nth term to determine if a number is in a sequence | **Sequence** - a particular order in which related things follow each other.  **Generate –** produce or create.  **Linear or Arithmetic Sequence** - A number pattern which increases (or decreases) by the same amount each time  **Geometric Sequence –** a sequence made by multiplying by the same value each time  **Nth Term –** a formula that enables us to find any term in a sequence. The ' n ' stands for the term number | * Students should already know how to find the nth term from a linear sequence | Exam Prep 4 |
| **To learn how to draw and sketch straight line graphs** | * Students will know how to plot straight line graphs in the form y = mx + c by first constructing their own table of values. * Students will know how to plot and draw graphs of straight lines in the form ax + by = c. * Students will know how to work out the x-intercept for a straight line * Students will know how to sketch a graph of a linear function showing the y-intercept and x-intercept | **Intercept** – cross  **Y-intercept** – the y-intercept tells us where a graph crosses the y-axis, this where x = 0  **X-intercept** – the x-intercept tells us where a graph crosses the x-axis, this where y = 0  **Substitute –** use or add in place of  **Coordinate –** two numbers or sometimes a letter and a number, that locate a specific point on a grid. They are written in the form (x, y) most commonly.  **Vertical –** something that is vertical stands or points straight up  **Horizontal –** something that is arranged sideways, parallel to the horizon, like a person lying down  **Quadrant –** one of the four quarters of the coordinate plane | * Students should already know how to draw a graph of an equation given in the form y = mx + c where m is a positive integer | Exam Prep 4 |
| **To learn how to interpret the equation of a straight line and calculate gradient** | * Students will know how to identify the gradient and y-intercept of a straight line given the equation including where rearrangement is required * Students will know how to calculate gradient between two pairs of coordinates. * Students will know that | **Gradient** – steepness. The gradient of a line tells us how steep the line is. | * Students will need to know how to rearrange formulae | Exam Prep 4 |
| **To learn how to find the equation of a straight line** | * Students will know how to find the equation of a given straight line and write it in the form y = mx + c * Students will know how to find the gradient and y-intercept for a straight line representing a real-life situation and exp |  | * Students will need to know how to calculate gradient between two coordinates | Exam Prep 4 |
| **To learn how to find the equation of a straight line from coordinates** | * Students will know how to determine the equation of a straight line from two pairs of coordinates. * Students will know how to substitute values into the equation of the line to find the intercept. |  |  | Exam Prep 4 |
| **To learn how to find the equation of parallel lines** | * Students will know that parallel lines have the same gradient * Students will know how to find the equation of any straight line that is parallel to another given line * Students will know how to solve more complex problems involving parallel lines | **Parallel –** parallel lines are two lines that are side by side and have the same distance continuously between them. | * Students will need to know how to calculate gradient * Students will need to know how to solve linear equations in the form a + x = c where a and c are integers or fractions | Exam Prep 4 |
| **To learn how to solve problems involving midpoints and find the length of a line** | * Students will know how to find the midpoint of a line * Students will know how to use the midpoint to find the coordinates of the end of a line * Students will know how to solve coordinate problems involving midpoints * Students will know how to find the length of a line using Pythagoras’ Theorem | **Midpoint -** the exact middle point. | * Students will need to know how to use Pythagoras’ theorem to work out the hypotenuse of a right angled triangle | Exam Prep 4 |
| **To learn how to solve simultaneous equations graphically** | * Students will know how to solve simultaneous equations graphically. |  | * Students will know how to use linear graphs to estimate values of y for given values of x and vice | Exam Prep 4 |
| **To learn how to solve linear simultaneous equations** | * Students will use elimination to solve basic linear simultaneous equations algebraically * Students will know how to use elimination to solve linear simultaneous equations algebraically including where both need multiplying. | **Simultaneous –** occurring, operating, or done at the same time.  **Simultaneous equations –** equations involving two or more unknowns that are to have the same values in each equation.  **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 will need to know how to solve linear equations * Students will need to know how to substitute into formulae | Exam Prep 4 |
| **To learn how to solve linear simultaneous equations** | * Students will know how to use elimination to solve linear simultaneous equations algebraically including where both need multiplying. * Students will know how to solve linear simultaneous equations representing a real-life situation, algebraically, and interpret the solution in the context of the problem. |  |  | Exam Prep 4 |