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| **F Unit 5: Equations, inequalities and sequences** | **Road Map** | | | | | |
| In this unit you will learn about number. The aims are as follows:  **LG1**: Knowledge  **LG2**: Application  **LG3**: Skills | Assessment Grades |  |  | | | |
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| **Themes** | **Learning Goals/Outcomes/Content** | | |  |  |  |
| 5a Equations | Select an expression/equation/formula/identity from a list; | | |  |  |  |
| Write expressions and set up simple equations; | | |  |  |  |
| Use function machines; | | |  |  |  |
| Solve simple equations; | | |  |  |  |
| Solve linear equations, with integer coefficients, in which the unknown appears on either side or on both sides of the equation; | | |  |  |  |
| Solve linear equations which contain brackets, including those that have negative signs occurring anywhere in the equation, and those with a negative solution; | | |  |  |  |
| Solve linear equations in one unknown, with integer or fractional coefficients; | | |  |  |  |
| Rearrange simple equations; | | |  |  |  |
| Substitute into a formula, and solve the resulting equation; | | |  |  |  |
| Find an approximate solution to a linear equation using a graph; | | |  |  |  |
| Solve angle or perimeter problems using algebra. | | |  |  |  |
| Write an equation to solve a word problem. | | |  |  |  |
| 5b Inequalities | Show inequalities on number lines; | | |  |  |  |
| Write down whole number values that satisfy an inequality; | | |  |  |  |
| Solve an inequality such as –3 < 2*x* + 1 <7 and show the solution set on a number line; | | |  |  |  |
| Solve two inequalities in *x*, find the solution sets and compare them to see which value of *x* satisfies both; | | |  |  |  |
| Use the correct notation to show inclusive and exclusive inequalities; | | |  |  |  |
| Construct inequalities to represent a set shown on a number line; | | |  |  |  |
| Solve simple linear inequalities in one variable, and represent the solution set on a number line; | | |  |  |  |
| Round answers to a given degree of accuracy. | | |  |  |  |

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| 5c Sequences | Recognise sequences of odd and even numbers, and other sequences including Fibonacci sequences; |  |  |  |
| Use function machines to find terms of a sequence; |  |  |  |
| Write the term-to-term definition of a sequence in words; |  |  |  |
| Find a specific term in the sequence using position-to-term or term-to-term rules; |  |  |  |
| Generate arithmetic sequences of numbers, triangular number, square and cube integers and sequences derived from diagrams; |  |  |  |
| Recognise such sequences from diagrams and draw the next term in a pattern sequence; |  |  |  |
| Find the next term in a sequence, including negative values; |  |  |  |
| Find the *n*th term for a pattern sequence; |  |  |  |
| Find the *n*th term of a linear sequence; |  |  |  |
| Find the *n*th term of an arithmetic sequence; |  |  |  |
| Use the *n*th term of an arithmetic sequence to generate terms; |  |  |  |
| Use the *n*th term of an arithmetic sequence to decide if a given number is a term in the sequence, or find the first term over a certain number; |  |  |  |
| Use the *n*th term of an arithmetic sequence to find the first term greater/less than a certain number; |  |  |  |
| Continue a geometric progression and find the term-to-term rule, including negatives, fraction and decimal terms; |  |  |  |
| Continue a quadratic sequence and use the *n*th term to generate terms; |  |  |  |
| Distinguish between arithmetic and geometric sequences. |  |  |  |

**Links:**

LG1: You will get to build on your algebra knowledge from unit 2 and will learn some important algebraic processes that will help you to tackle some more complex algebra in year 10.

LG2: You will apply the algebraic processes from this topic to model written and geometric problems using algebra.

LG3: You will use your problem-solving skills and mastery of algebra to solve complex Mathematical problems such as calculating the angles of a triangle by forming and solving an equation.

**Links:**

LG1: It is vital that you know how to work with different types of numbers with confidence and fluency.

LG2:.You will apply the number processes from this topic to lots of other areas of Maths.

LG3: The skills to solve complex problems using your Mathematical knowledge will be needed throughout GCSE Maths.