

## **Mathematics Foundation Syllabus**

### **1. Numbers.**

- Writing numbers in decimals.
- Writing numbers as fractions.
- Writing and using negative number.
- Rounding numbers up and down.
- Addition, subtraction, multiplication and division.
- Putting numbers in order of size.
- Writing numbers in word and writing numbers in figures.

### **2. Factors.**

- Work out the highest common factor from given numbers.
- Work out the lowest common multiple
- Work out the Factors and Prime Factors of given numbers.

### **3. Using a scientific calculator.**

- Calculate Powers (indices) and roots.
- Use brackets and use Pi in certain calculations.

### **4. Percentages.**

- **Calculate** simple and compound interest.
- Calculate percentage increase and percentage decrease.
- Convert percentages to fractions and decimals.

### **5. Ratios.**

- Solve ratio problems in context, eg recipes, share a quantity in a given ratio.

### **6. Algebra 1.**

- Understand the terms equation, formula and expression.
- Simplify expressions, expand and simplify, factorise expressions and solve equations.

### **7. Algebra 2.**

- Use index notation for squares, cubes and powers of 10.
- Use the index laws for multiplication and division of integer powers.
- Manipulate algebraic expressions by collecting like terms.
- Multiplying out bracket and taking out common factors.

### **8. Number sequences.**

- Recognise simple number patterns, continue the sequence.
- Explanation of the pattern.

**9. Straight line graphs.**

- Complete a table of results, plot the points and draw the graph.
- Take data from drawn graphs. Understand the equation  $y = mx + c$ .

**10. Angles.**

- Recall the properties of the following shapes, Square, Rectangle, Parallelogram, Trapezium.
- Understand the properties of angles including Acute, Obtuse and reflex angles.
- Calculate the size of angles from any of the above shapes. Measuring angles.
- Give reasons for the size of angles calculated.

**11. Perimeters, Area and Volumes.**

- Calculate the perimeters, areas and volumes of triangles and rectangles and circles and related prisms. Calculate the surface area of given prisms.

**12. Pythagoras' Theorem.**

- Understand, recall and use Pythagoras' Theorem.  $a^2 = b^2 + c^2$

**13. Measurement.**

- Convert measurements from one unit to another.
- Metric to imperial, i.e. Litres to gallons Kilograms to pounds and cm to feet.

**14. Completing two way tables.**

**15. Statistics.**

- Calculate median, mean, mode and range.
- Draw a stem and leaf diagram.
- Complete a Cumulative Frequency table.
- Draw a Cumulative Frequency graph.

**16. Line and Scatter graphs.**

- Draw and interpret scatter diagrams, recognise correlation, draw line of best fit and take data from the graph or diagram.

**17. Probability.**

- List all outcomes for single events, and for two successive events.
- Mark events and/or probabilities on a probability scale of 0 to 1.
- Complete a tree diagram.